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CHIEFLY TO THE BIRDS ON THE BRITISH LIST

EDITED BY

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ERRATA.

p. 60. Short Notes, line 4 from bottom, for "*minutilla*" read "*minuta*".

p. 127. Heading of note, for "Lesser-backed Gulls" read "Lesser Black-backed Gulls".

p. 145. Studies of some species rarely photographed : for "VI" read "VII".

p. 155. Kentish Plover in North Kent and Essex, line 1, for "Mr. E. M. Manser" read "Mr. G. E. Manser".

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OBSERVATIONS ON THE TERRITORY AND BREEDING BEHAVIOUR OF THE WILLOW-WARBLER

BY

D. J. MAY.

During the spring and summer of 1944 I spent some time in making a preliminary study of the Willow-Warbler (*Phylloscopus t. trochilus*), following this in 1945 by a more detailed investigation. It is chiefly on the latter that the present paper is based, but a few interesting 1944 observations (and one from 1943) are also included.

The study was made on Englefield Green, Surrey, a gorse and bramble common studded with birch trees both large and small, and 15 acres in area.

Arrival of Males.

In 1945 the first resident male arrived on the Green on April 3rd (compared with April 6th in 1944), although one passing through had rested there for a short while on the previous day. Almost immediately the resident attached itself to a small area of about two acres, where it sang fairly frequently, and by the next day it was singing regularly in the same area. On April 5th two more arrived and attempted to settle themselves in territories adjacent to that of the first arrival. The following day brought another seven, April 8th another one, and April 9th another three. There followed a quieter period until April 12th, when a party of seven arrived on the Green and once more confused the whole situation. Eventually there were thirty-three males occupying territories on the Green, including several not discovered until they had young in the nest. From April 3rd onward all arrivals stayed except one, which may have moved to another part of the Green and been taken as a new arrival.

Establishment and Defence of Territory.

Howard (1907-14) showed that the song of birds played a major rôle in advertising territory; such is certainly the case with regard to the Willow-Warbler. Thus, from my field notes for April 7th:

"A, B and C were all singing frequently between intervals of feeding, on nearly every occasion replying to one another. F was singing in his usual thick grove of birches, and once went out of them to feed and sing in some more distant bushes. On this, D, whom I had not heard since my arrival, flew from a nearby clump of gorse and bramble at F, a brisk encounter following before D returned to the clump and F hopped a little way off. They sang, answering each other, both gradually moving forward to the place of the previous tussle; suddenly D flew at F again, and after another chase D flew back to the clump squeaking, and F back to his own grove. They fed for a while—until D sang again, when F also stopped feeding and replied. After a few more answering song-phrases both retired into silence."

The incident between D and F also shows the typical way in which territory is defended when once established; but frequently the encounter is of a much more excitable nature—especially on the fresh arrival of one or more males who attempt to settle themselves adjacent to an established one. Between songs the birds call constantly with a hoarse "ch-ch-ch" and a shrill squeak—presumably *The Handbook's* "chi-churrc" and wheezy "chee" respectively—and often a chaser sings as he flies rapidly after an intruder. Under much provocation the defending bird, and occasionally the intruder, beats its wings in the normal courtship manner—apparently not as a warning display but as an outlet for the bird's emotions, for it is most frequently seen when the intruder has flown out of sight. It is nearly always accompanied by continuous squeaking.

On two occasions when a newcomer was trying to usurp part of an established male's territory, the latter was heard to use a very harsh squeaky song, a rapid repetition of the two notes mentioned above, between its normal song-phrases. In spite of its obviously very great excitement, however, it did not display once—possibly because it was occupied in singing and chasing the whole time. Nevertheless, wing-flapping as an outlet for *territorial* (as opposed to *sexual*) emotion seemed to be confined to five birds only; not once did I see any of the others using it under the greatest provocation.

By the end of April the excitement has died down to some extent, and although until the end of June the territory is still the centre of all activities, *e.g.* feeding, and boundary encounters are not infrequent, when once the young have hatched the birds are normally too busy for anything else.

No exact measurements of territories were taken, but a fairly accurate average estimate was made by dividing the number of territories into the total area occupied. The area of the Green is approximately 15 acres, of which about 3½ acres were unoccupied. Thus the 33 territories covered approximately 11½ acres, giving the average area of each territory as just over ⅓ acre, or 1,680 square yards. This is distinctly larger than the Blackcap (*Sylvia a. atricapilla*) or Garden-Warbler (*Sylvia borin*) territories measured recently by Raines (1945), but very much smaller than the 1⅗ acre average of Lack's (1943) Robin (*Erithacus rubecula melophilus*) territories in Devon, and, indeed, than those of all other species that he refers to.*

The sketch map shows the approximate size of each territory. The two roads running through the centre of the Green formed a boundary for many of them, but the several footpaths on it were ignored for this purpose. It can be seen that all of the conglomeration of territories in the north-west of the Green are smaller than, say, the completely unbounded territory of P at the southern extremity.

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* It is becoming increasingly evident that the territories of the British warblers (*Sylviidæ*) are as a rule much smaller than those of many other species; *cf.* also Philip E. Brown on Reed-Warblers (*antea*, Vol. xxxix, pp. 290-308).

Brock (1910), writing of a group of Willow-Warblers in Midlothian, says that territories are not sufficiently sharply demarcated to allow exact boundaries to be drawn. He had, however, only 24 males occupying territories in approximately 26 acres—a density of population equal to only one-third of that of my birds. This suggests that with an increase in population density there is a corresponding increase in the rigidity of boundaries and territorial defence.

As previously mentioned, 3½ acres of the Green were unoccupied; this was due in one case to the absence of undergrowth suitable for nest-sites beneath some high birches, and in another to the absence of any trees or tall bushes suitable for song-posts projecting from the undergrowth of small gorse and bracken.

ARRIVAL OF FEMALES.

The first female Willow-Warbler arrived on the Green on April 12th; thus the arrival of males and females overlapped. Each day until then I had made a careful round of each male's territory, and was certain that there were no females present. On April 13th another arrived, and the next day a third. After that they came in a rush, and I was unable to keep count of them. Price (1936) records that "a certain though fluctuating number [of Willow-Warblers] fail to get mates each breeding season." However, this was not the case in the present study. Eventually every male on the Green was mated; nests of 23 pairs were found, and all the other pairs were seen together, most of them carrying food to an undiscovered nest.

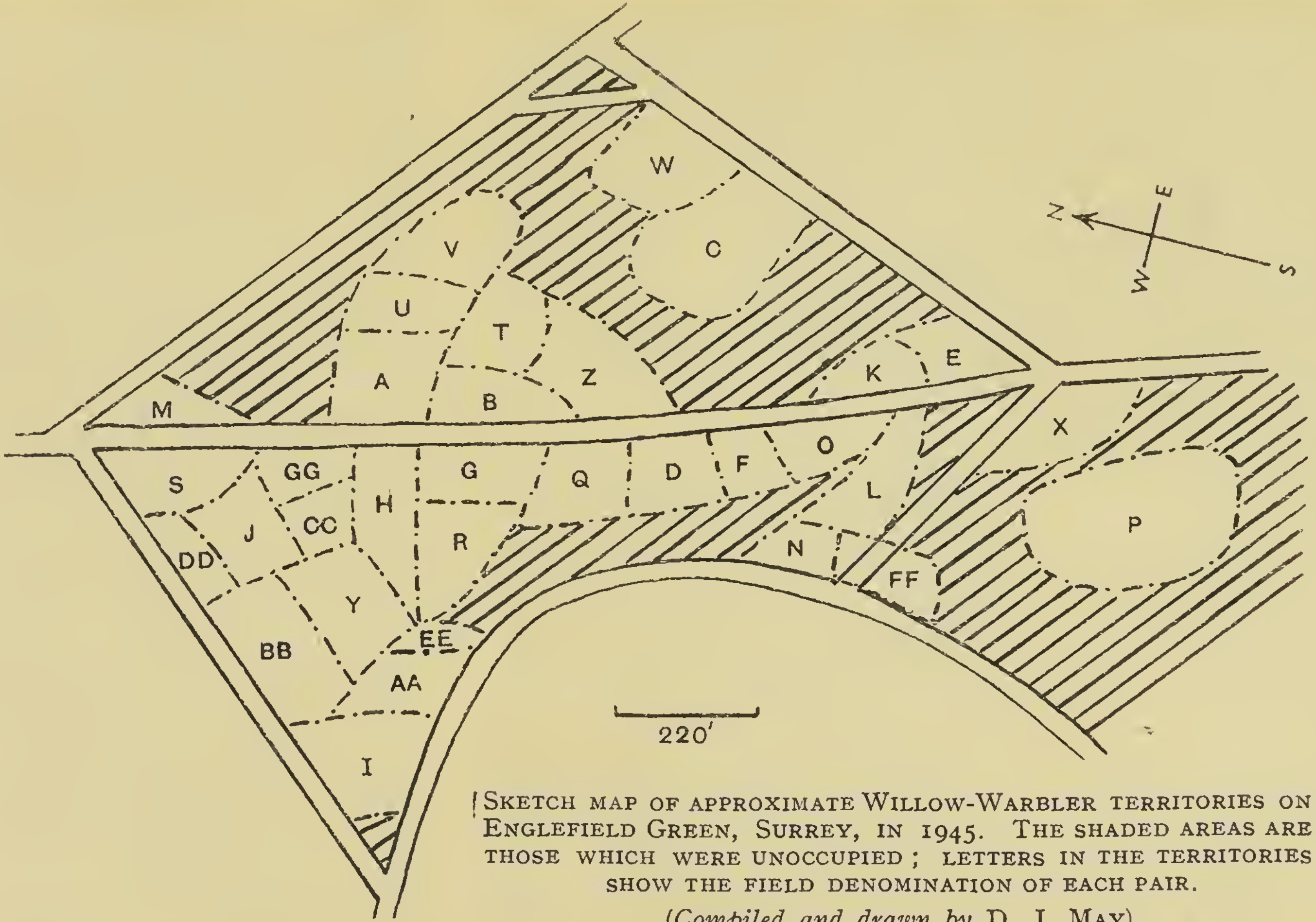
A newly-arrived female is first recognized as such by its continually accompanying an established male without any sign of aggression from the latter. There is little sign of emotion from either bird; the male, constantly singing, accompanies the female closely all the while without any display or call notes, while the latter frequently calls with a soft squeak. If the male approaches too close to his prospective mate, however, there is frequently a slight "tiff", as if the latter resented his approaches. Similar behaviour in the Robin is described by Lack (1943).

Once an unmated male in an adjacent territory to that of a newly mated pair was seen to fly down to the female, but was immediately chased off by the rightful male bird.

COURTSHIP DISPLAY.

The typical courtship display—wing flapping and sometimes a butterfly-like flight, by either sex—was seen fairly frequently, although I was rarely able to be out in the early morning. Three incidents of a display not recorded in *The Handbook* were also seen; they are therefore described in fairly full detail

On April 23rd I was watching a female Willow-Warbler flapping its wings in the usual way in a tree, while its mate was singing and



SKETCH MAP OF APPROXIMATE WILLOW-WARBLER TERRITORIES ON ENGLEFIELD GREEN, SURREY, IN 1945. THE SHADED AREAS ARE THOSE WHICH WERE UNOCCUPIED; LETTERS IN THE TERRITORIES SHOW THE FIELD DENOMINATION OF EACH PAIR.

(*Compiled and drawn by* D. J. MAY).

feeding on the ground beneath it. The latter gradually made its way up to her, singing and making the thin shrew-like note described in *The Handbook*, until it was only a few feet from her, when it flew right up to her and appeared to feed her. There followed a slight scuffle, and the male flew off and recommenced singing in a distant tree.

The following afternoon I was waiting concealed among some bushes near the spot where a friend had seen a Willow-Warbler taking feathers a few days previously. Twice during the first 15 minutes watching, the female flew into the small birch tree above the approximate site of the nest, the first time accompanied by the male, who was singing most of the time in a fairly distant tree. Another uneventful half-hour passed until once more the male flew into the tree and sang and fed there alone for a few minutes. Something distracted my attention for a moment, and when I turned back again, to my surprise I saw two birds in the tree, one, which I think was the male, wing-flapping. Suddenly this bird put its head against the other's, possibly feeding it, and immediately afterwards the latter flew off, followed a moment later by its mate.

The third incident took place on the evening of May 6th. The pair of birds involved owned a nest containing at the time three eggs. One of the pair was perched on a sprig a few inches above the ground, when its mate flew over, faced it, and distinctly placed its bill against the other's, again probably feeding it. As in the case of the first pair, there followed a slight chase, after which the male flew off and sang, while the female flew off in the direction of the nest.

It seems, therefore, that feeding of the female by the male, or at least "billing," is a fairly regular type of Willow-Warbler display; for all the preceding events took place in the afternoon or evening, when courtship would presumably be at a *lower* intensity than in the morning.*

NEST CONSTRUCTION.

Ryves (1944) divides birds into four classes under this heading, and it is into category three—species in which the female alone collects the nesting material and builds—that the Willow-Warbler falls. But in many cases the male takes a great interest in his mate as she takes material to the nest, frequently accompanying her, or warning her of an enemy's approach by the usual "hooeet." Others are more apathetic; but rarely is a male far away when his mate is building.

As mentioned above, in 1945 the first female arrived on April 12th, and this bird was also the first to be seen building—on April 17th, five days after its arrival, and 14 days after the arrival of the first resident male. In 1944 I first saw nest-building on April 22nd, this time 16 days after the first male's arrival.

The building bird usually works silently, even when alarmed uttering only a soft squeak. But in at least two cases, just as the bird entered the nest with more material, she uttered a loud "hooeet" —possibly as a signal to her mate.

---

* Since this was written, two other cases of courtship feeding have been recorded (*antea*, Vol. xxxix, pp. 25 and 280) and during 1946 I have seen definite feeding on three other occasions.

The nest is begun with an outer shell and dome of thick dry stems of grass. There follows a first lining of thinner and smoother grass-stems, and finally an inner lining of feathers, with a few cocoons and hairs. In one undamaged nest which was deserted I counted 240 feathers. But there is no clear line of demarcation between the first and second linings—*i.e.* at one stage the bird collects thin grass and feathers alternately and indiscriminately.

Material is collected from several places—all, however, within about 40 feet. Generally the building bird goes straight from the nest for more material, pausing for food and rest only after a reasonable interval of work.

Nests fall into two distinct types. In the commoner the nest is built in a hollow under a thick tuft of grass or similar vegetation, so that the back of it is invisible, and consists partly of growing vegetation. In the other, the whole nest is exposed, the back being built entirely by the bird. Of the 24 nests which I found in 1945, 18 were of the first type, and six of the second. In all of the six cases of type two there was an abundance of possible type one nest sites in the immediate vicinity; and as in most cases the nests were made more conspicuous by their exposed backs, and must have taken longer to build, it is to be wondered why these six birds did not build nests of the commoner type one. There is apparently no inherited instinct to build one particular type, either; for the only second-brood nest I found was of type two, although its predecessor was of type one.

Finally, there seems to be no impulse to the birds to build in the centres of their respective territories. Indeed, they often built on the very borders of them, for in two cases where I knew only the approximate boundary between two territories, I was under the impression that a nest belonged to a pair on one side of the boundary until I found that pair's true nest only a few yards away.

CLUTCHES AND INCUBATION.

Table I shows that ten actual first-brood clutches were counted in 1945, and five other broods of young. The number of young probably corresponded to the sizes of the respective clutches, for no eggs remained in the nests afterwards—as is usually the case with respect to eggs of the Willow-Warbler which do not hatch—and I do not think they were known to any egg-collectors. Thus altogether 15 first brood clutches consisted of 4/5, 7/6 and 4/7. Brock found similarly that the commonest clutch was six, recording 1/4, 4/5, 10/6, 4/7 and 1/8. In addition, one second-brood nest, the predecessor of which contained six eggs, also held a clutch of six, while four second broods of Brock's consisted of 2/3 and 2/4.

Eggs were laid in three cases in the early morning, and in three other cases in the evening; but the actual time of laying varied within an hour or two each day.

The period between the laying of the first egg and the hatching of the young varied considerably. This seems to indicate that in some instances there was a period of casual brooding of the eggs. It is almost certain that such occurred in the case of Nest 5, with the extra-long "incubation period" of 14-15 days. The last egg was laid on May 8th, but in spite of visits to the nest at least once daily I did not see the bird on her nest until May 12th—as I surely would have done if she had been incubating consistently between those dates.

TABLE I.

INCUBATION AND FLEDGING DATA

Nest	*First egg laid*	*Last egg laid*	*Clutch*	*First egg hatched*	*Last egg hatched*	*No. hatched*	*Period **	*Young fledged*	*No. fledged*	*Fledging Period*
1	April 25	April 30	6	May 13	May 13	6	13½ days	Taken by cat		
2	April 25	April 30	6	May 14	May 14	6	14 days	Ditto.		
3	April 25	May 3	5	May 15	May 15	3	12 days	?	3	—
4	May 3	May 7	5	May 20	May 20	4	13 days	Taken by cat		
5	May 4	May 8	5	May 22	May 23	3	14-15 days	June 5	3	14 day
6	May 6	May 12	7	May 24	May 25	7	12-13 days	Taken by Jay		
7	—	—	7	May 16	May 16	7	—	Taken by cat		
8	—	—	6	May 14	May 14	5	—	May 29	5	15 day
9	—	—	—	—	—	6	—	May 24	6	—
10	—	—	—	—	—	6	—	May 29	6	—
11	—	—	—	—	—	?4	—	May 23	?4	—
12	—	—	6	May 26	May 26	6	—	June 11	6	16 day
13	—	—	—	—	—	?6	—	Taken by cat		
14	—	—	—	—	—	?6	—	?	?6	—
15	—	—	7	May 31	May 31	7	—	Taken by cat		
16	—	—	—	—	—	5	—	June 3	5	—
17	—	—	—	—	—	?4	—	Taken by Magpie		
18	—	—	—	—	—	6	—	May 30	6	—
19	—	—	—	—	—	7	—	?	7	—
20	—	—	—	—	—	?6	—	June 8	?6	—
21	—	—	—	—	—	?6	—	June 3	?6	—
22	—	—	—	—	—	?6	—	June 6	?6	—
23	—	—	—	—	—	?4	—	June 4	4	—
24	—	—	6	June 19	June 19	6	—	July 2	6	13 da

* Between laying of last egg and hatching.

A word about the laying of the clutch in Nest 3 is necessary. The first egg was laid on the evening of April 25th; the second was seen on the evening of April 27th, the third on April 29th ; the fourth on April 30th, and the fifth on May 3rd. Thus either the female was very erratic in her laying behaviour, or, as seems more probable, although I never had any evidence of it, someone was removing eggs as they were laid. In any case, the period of nine days between the first egg and the last is of interest.

Early broods included Nos. 1, 2, 3, 9 and 11. Six others—4, 5, 8, 10, 16 and 18, would come into the category of "early" under the same conditions as those included in some recent notes (*antea*, Vol. xxxix p. 62). In that case, however, 11 out of 23 broods would be classed as early; so, considering similar experience in 1944 when in five out of eight nests, the young were fledged before the end of May, and the regularity with which examples are published almost every year, I suggest that only clutches completed before the end of April be regarded as "early" broods.

REARING OF THE YOUNG.

While the hen alone incubates, both male and female take part in feeding the young, though to a very variable extent. But even when the male's share is almost negligible he takes almost as much interest in the female as during the nest-building period, always singing very near the nest. Males which help to feed the young usually take little interest in intruders from other territories; but the few who are less solicitous in assisting their mates chase off trespassers with almost as much vigour as before.

The nestlings are silent as long as a parent is nearby, "hooeeting." Indeed, casual observation leads one to believe that they do not call for food at all. When both parents are out of the vicinity, however, the young set up a constant squeaking, audible at some little distance. When actually being fed, they hiss; when disturbed they frequently give a defiant "chick-ick." They are frequently very difficult to count—hence the number of queried brood counts in Table I.

The fledging dates of 3, 14, 19 were not recorded due to an oversight, but three fledging periods—measured from the date the eggs hatched to the date the young left the nest—were noted. These were of 14, 15 and 16 days respectively, the last being exceptionally long for the Willow-Warbler. In contrast the second brood 24, fledged in 13 days.

SECOND BROODS.

Of those birds which rear a first brood successfully only a small proportion—Brock estimates 15-20%—rear second broods; and owing to lack of time my notes on these are few. My most interesting observation was in 1944, when a second brood nest was commenced before the young of the first brood were fledged. Brock records 8, 10 and 15 days between the date that the first brood left the nest and the first egg of the second brood.

The young birds in nest A1 left it during the afternoon of May 29th, but on May 28th I saw a Willow-Warbler in the male's main singing tree with a feather in its beak. It flew towards a gorse clump about 20 feet from A1, but swerved round when half-way there and flew back, letting the feather drop. On June 7th I again looked in the clump, when a Willow-Warbler flew out from some tangled grass at the base of it, in which I found the nest, A2, containing four eggs. These hatched on June 15th; thus the bird probably began incubating on June 2nd, and the first egg was probably laid on May 30th.

Second-brood nest-building before the young of the first brood have flown has been recorded occasionally before. Fisher (1939) summarizes references up to that date, and Lack (1943) records that it is found fairly frequently in the Robin, but I believe that this is the first recorded occurrence in the Willow-Warbler.

"INJURY-FEIGNING" DISPLAY.

In the three years 1943-45 I noted injury-feigning on only four occasions.

June 2nd, 1943.—"While I was searching for a nest, the bird which had been "hooeeting" in the surrounding bushes flew down and dragged its wings along the ground in the usual manner. The nest, which I later found, contained young about 12 days old . . . "

May 28th, 1944.—"I had found the nest containing young, 11 or 12 days old, and was examining it, when one of the two parents which had been taking food to the young and were worrying around, flew just above my head, called with an extra loud "hooeet," then fluttered to and along the ground dragging both wings behind it . . . "

July 7th, 1944.—The nest on this occasion was the second brood of the previous pair. The bird which had been feeding the young, flew out of the nest and directly began to drag its wings along the ground in the usual way. The young were about a week old.

May 19th, 1945.—" . . . . .One bird was taking food to the young silently while I was standing nearby, but when I bent down to look for the nest, she (?) immediately flew off just past my head and ran along the ground, with one wing draping along it, and the other slightly drooped. I followed her, having found the nest, and, as usual, she flew off after I had gone a short distance. . . " The young were about three days old.

Thus it seems that there is little regularity about "injury-feigning." Possibly, as it was observed twice in the same pair—probably by the same bird each time—it is a characteristic of a few birds only, for on very many occasions, under similar circumstances to the above, no "display" took place. Neither does it seem to be confined to any particular stage of development of the nestlings, for it was observed both when the nestlings were very young and almost fledged.

MORTALITY IN THE NEST.

TABLE II.

	1944	1945
Total No. of nests examined	10	16
,, ,, ,, eggs laid	56	96
,, ,, ,, eggs hatched	48	90
% hatched to eggs laid	85.7	93.8
Total No. of young fledged	32	53
% fledged to eggs hatched	66.7	58.9
% fledged to eggs laid = nesting success	57.1	55.2
% mortality of eggs laid	42.9	44.8

Table II shows the mortality in the nest in 1944 and 1945. A few nests found each year are omitted—those in which either the clutch size or the number of young could not be counted accurately. The total mortality was approximately the same each year; though the data on which the figures are based are not very numerous, they suggest that the mortality rate is fairly constant. Judging by Nice's (1937) summary of similar studies, the Willow-Warbler's nesting success is between that of open-nesting birds (40.5-46.7%) and hole nesters (55-76%)—probably what one would expect with its domed ground nest.

More young were destroyed than eggs. This can probably be accounted for by the fact that predators—in this case chiefly a pair of Magpies (*Pica p. pica*), a Jay (*Garrulus glandarius rufitergum*) and a cat—found the young more easily than the eggs, by watching the parents descend to the nest with food, or by hearing the squeaks of the young.

CESSATION OF SONG AND DEPARTURE.

In mid-June, when first broods are almost over, and second broods are advanced, song gradually dies down, and the birds go into retirement for the autumn moult. Throughout late June and July there is little song, but towards the end of the latter month, when the first birds appear in their bright autumn plumage, it is quite frequently heard on sunny mornings, and occasionally during the day—one song often evoking a reply, although by this time territory is almost non-existent.

At the beginning of August birds begin to disperse, but there is apparently no great hurry to leave this country, for many of the birds associate with the growing flocks of tits, wandering about the countryside. But soon the urge to migrate becomes predominant, and by the end of September only a few birds, stragglers with the tit flocks, are left.

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AGGRESSIVE DISPLAY OF THE RINGED PLOVER

(Studied by means of a stuffed specimen and a mirror)

BY

GEORGE EDWARDS, ERIC HOSKING AND STUART SMITH.

(Plates 1-8).

(1) METHOD OF STUDY.

THIS account, and the accompanying photographs, are the result of an investigation into the aggressive displays of the Ringed Plover (*Charadrius h. hiaticula*). The displays were evoked by means of a stuffed specimen of a Ringed Plover, and by the use of a mirror. These latter were placed at, or near, a nest of the birds which we found on a sandy heath in the Suffolk " Breckland."

We studied the displays by working as a team, two members being in hide-tents near to the nest, whilst the third was concealed further off, and could emerge at a signal and rearrange, or move, the dummy or mirror as circumstances required. One of the hides was directly to the south of, and six feet away from, the actual nest site, and was used for the photography. This gave close-range observation, though the field covered was correspondingly restricted. The second hide was placed 30 yards to the west, and besides giving a wide-range view, also enabled the posturings and stances of the birds to be viewed from another angle through 8x glasses. The third observer was concealed in bushes 100 yards away to the north of the nest, and he used 12x glasses for viewing.

Throughout this account, we refer to the individuals of this pair of Ringed Plovers as *cock* and *hen*, but we wish to make it clear that we do so only because of slight, but distinct, plumage variations between the two birds. Thus one of the birds had a much brighter bill and legs than the other, as well as a more extensive and blacker gorget. This bird we call throughout the cock, and the other the hen, but we wish it to be understood that we do so with a certain amount of reservation.

All the photographs are by Hosking, except Fig. 5, which is by Smith.

(2) EXPERIMENTAL.

(a) GROUND DISPLAY AND ATTACK.

We started to work the pair on May 21st at 2.30 p.m., the dummy being erected 20 yards north-east of the nest. In this position, we were able to evoke the aggressive displays against the dummy which are discussed in detail below, but as the distance from the nest was too far for photographic records of the displays to be obtained, we decided to move the dummy to a position four feet to the east of the nest. The cock bird was the first to return, and he walked slowly round the stuffed bird in a hunched attitude, and then ran a few yards away, where he went through the attitudes of "false-brooding," lowering his breast feathers and exposing the brood-spots in a slight hollow a few yards north of the actual nest. He then went straight to the nest and brooded the eggs. There was no other reaction. After half-an-hour, the hen approached for a change-over, and the cock ran from the eggs. Immediately the hen saw the stuffed bird, with the cock standing about 15 yards away, she ran to the attack and the cock at once joined her.

The pair approached the dummy together, running towards it with breast feathers puffed out and lowered, the black gorget showing with striking contrast against the white throat-band. At the same time, the feathers along the back were raised so that they showed well above the head, whilst the tail was either *depressed* and fanned, or *raised* and fanned (Fig. 1). Seen from near ground level, the tail in either of these positions gives a black and white frame to the similarly contrasted *motif* of the alternations of black and white of the breast, forehead and crown. The general effect is striking and has an obviously high threat-value.

As the dummy was approached more nearly, the reactions of the birds quickened and intensified and during the "run-in" the birds called excitedly "tee-lew," "tee-lew," "tee-lew," the calls getting more and more rapid until they sounded like a continuous "t'lew, t'lew, t'lew, t'lew, t'lew." In addition, whilst circling preparatory to the run-in, the birds often called with a guttural, croaking, "crook, crook."

The final attack was carried out by one of the pair singly ; there was never a simultaneous attack on the dummy although both birds usually approached it together. The mode of the final attack varied according to whether the attacking bird was the cock or the hen. If the hen, the bird approached right up to the dummy with the crouched stance (Fig. 2), then raised its wings quickly, and sometimes, though not invariably, placed a foot on the dummy and gave a vigorous peck at the crown feathers (Fig. 3). The bird then immediately sprang away with wings still raised, often taking one of the crown feathers away in its bill (Fig. 4). It is impossible to give a true idea, in a written account, of the rapidity with which these various actions which made up the final attack were delivered, but the actual attack and the spring away were over in a flash. Sometimes the attacking bird swallowed the feather, and sometimes threw it away.

If the cock bird delivered the final attack, the crown was not pecked, but a dive was made for the *feet* of the dummy, which were pecked, and then the bird sprang rapidly away. Fig. 5 shows the cock pecking the dummy's feet, the hen approaching at left.

After several attacks by both birds, reaction to the dummy began to weaken or "run down." We found that the hen bird was always the most ready to attack, gave the most intensive displays, and sustained them longer than the cock. He "ran-down" more rapidly, and soon, instead of attacking the dummy, began to swerve past it rather nervously with fanned tail (Fig. 6). This diminution in aggressive reaction came 12 minutes after the dummy had first been erected and about this time both birds began to pick up small stones and pieces of grass, and to throw them over their backs. This reaction, which is also one which regularly occurrs with many waders in such sexual situations as nest-relief, occurs too, for instance, when these birds return to their nests to find that they have been opened-up for photographic purposes. We have seen Common Sandpipers (*Actitis hypoleucos*) and Lapwings (*Vanellus vanellus*) under such circumstances, pick up small stones, twigs, moss or grasses, and toss them over their backs. Finally, 15 minutes after the dummy was first placed in position, the hen, after walking round once or twice in a hunched-up attitude, went onto the eggs and brooded. The cock actually stood quietly by the dummy and preened for some minutes, before running 50 yards away to commence feeding.

It seemed that now all reaction to the stuffed bird had ceased, but after ten minutes of quiet incubation, the hen left the eggs, called to the cock, who immediately ran up, and the rushes at and the buffetting of the dummy recommenced. The hen frequently went to one side of the dummy, about ten yards to the west of it, and false-brooded, working imaginary eggs under her. During these intervals, the cock often stood closely behind the dummy, and stretched himself above it with elevated and puffed breast feathers (Fig. 7.). He then began to move his legs, one after the other, with a motion which resembled exactly the ceremonial "goose-step" of the German army, though in rapid time. The legs were half-raised, and then vigorously kicked forward, one after the other, the feet being returned to their original place on the ground. It was a "mark-time" with goose-stepping motion, and the action was quite different from that of the Redshank's legs in that bird's nuptial display.

The reactions of both cock and hen diminished rapidly, however, lasting this time not more than five minutes, and since the presence of the stuffed bird was keeping the Ringed Plovers from regular incubation, we removed it, after it had been in position about an hour.

(b) FLIGHT ATTACK.

Next morning we re-erected the dummy 2 ft. 6 ins. from the nest, again on the east side. The hen bird had left the eggs as we approached, but we scarcely had time to enter the hides before she ran quickly towards the dummy and, when about 20 yards away, took wing and flew straight at it. She whipped over the top of the stuffed bird, striking it first with her feet, one after the other, and following this with blows from the primary flight feathers. The action of striking with the feet is shown in Fig. 8, where the left foot is kicking up the back feathers of the stuffed bird. The right foot is shown about to follow and the wings are raised preparatory to being brought down upon the dummy's back. All these reactions occurred and followed one another very rapidly, whilst the bird was actually in the air. The blows sounded like a single "thwack" and the dummy vibrated rapidly for a few seconds after being struck. Later the wires supporting the legs became badly bent to one side as a result of these attacks.

In order that they should not interfere seriously with the hatching of the clutch, no more experiments were carried out until the day of the hatch, which was calculated from the clutch-completion date to be May 25th.

(3) REACTIONS ON THE DAY OF HATCH.

When we arrived at the nest on May 25th, one egg was chipped. The stuffed bird was first placed three feet to the east of the nest, and evoked instantaneous and most violent reaction from both birds. They attacked with a vigour which was even greater than that we had previously witnessed, though the reactions and modes of attack were the same as before. Once, the hen pecked a large feather from the crown of the dummy, and the cock then ran up, seized it from her bill, and raced away with it, to drop it at a distance. When these initial reactions began to become exhausted, the hen went on to the nest, but before settling to brood, she pecked into the hole in the chipped egg. As the hen brooded, the cock displayed to the dummy in an entirely new way, not evident in previous displays. He commenced "injury-feigning" in an attempt to lead the dummy away from the nest. It was as though refusal on the part of the dummy to be intimidated by prolonged threat and attack had temporarily reversed the "*superiorisms*" of the cock towards the dummy and supplanted "*inferiorisms*" (Allen's terms : *vide infra*).

The "injury-feigning" included twirling round and round with puffed feathers and dragging wings ; and also the Ringed Plover's usual variant of the "broken wing trick" in which the bird leans to one side and waves one wing lamely in the air, and then runs away with that one wing dragging.

When "injury-feigning" failed too, in its purpose, the cock reverted to attack, and when the pair were working together, it was evident that the advent of the hatch had greatly intensified their reactions. In addition, the presence of the dummy combined with the emotional excitement of the hatch evoked an intolerance of the presence of other birds which had not previously been evident. Thus, 80 yards to the west of the Ringed Plovers' nest, a pair of Wheatears (*Œnanthe œ. œnanthe*) were feeding young in a nest in a disused rabbit burrow. These Wheatears had previously been placidly tolerated by the Ringed Plovers and had gathered food over the whole of the Ringed Plovers' territory without incident. Now, however, they were vigorously attacked by whichever Ringed Plover was not brooding. Furthermore, a Missel-Thrush (*Turdus v. viscivorus*) which alighted about 25 yards from the nest was attacked at once, to its most evident surprise ! The thrush backed away, but the cock Ringed Plover seized and held one of its tail-feathers, which was retained as the thrush took flight.

Another striking manifestation of the high emotional pitch to which the birds had been raised was the frequency with which the pair "changed-over" at the nest, and also the fact that, whereas previously these changes took place with the sitting bird leaving when the other of the pair was some distance away, they now invariably took place at the nest itself. It seemed as though the birds were loath to leave the eggs uncovered for even the shortest space of time. In addition the bird not brooding did not go some distance from the nest as it previously had done, but fed in the immediate vicinity about 25 yards away.

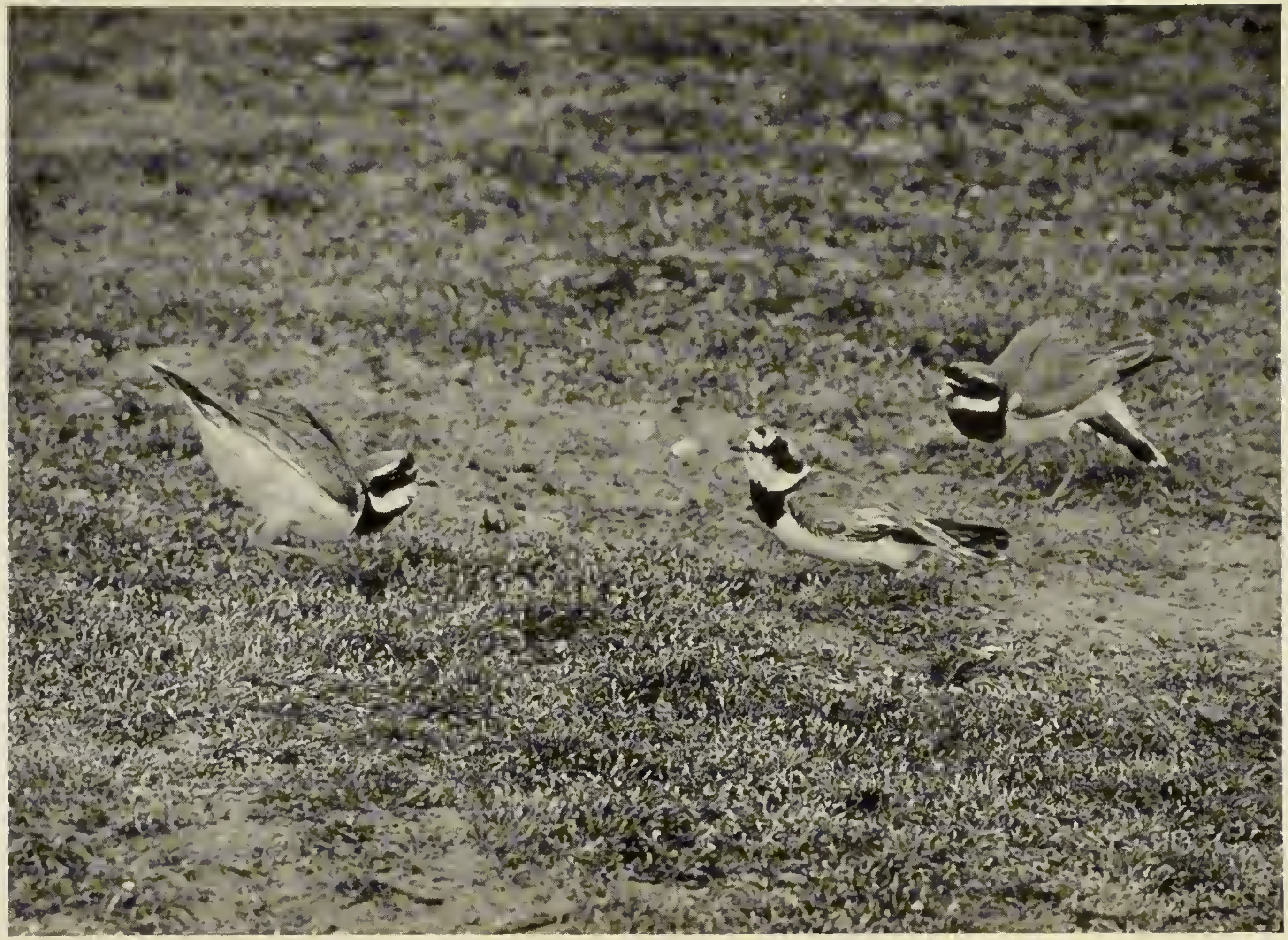
We now decided to move the dummy 30 feet from the nest to see if the aggressive behaviour bore any relation to the distance of the dummy from the nest. As one of us approached the dummy to remove it, both the Ringed Plovers ran up to within a few yards, calling and displaying *at the observer*. Their tameness was remarkable. He took the dummy, lay full length on the ground, and holding it in his hand moved it up and down to display the throat and breast markings. Both Ringed Plovers rushed forward and displayed within eight feet of the dummy, disregarding the observer. When he stood up, they flew away and the dummy was erected at the 30 feet point.

The hen was the first to return and she walked right past the dummy without taking notice of it, and went to the nest. After five minutes, the cock returned and stood near the dummy. The hen looked up, saw both birds, left the eggs and immediately gave a full and intensive display. This was a fact which we continually noticed ; that it needed the presence of the dummy *plus* another bird to evoke full aggressive display in the third. It was as though the presence of two birds was essential in the visual pattern presented to the third before the latter reacted with a full aggressive display.

Finally, two hours after the dummy had first been erected, we moved it to within one foot of the nest. Reaction in both birds was now becoming progressively weaker, although it should be noted that on this day of the hatch, the high emotional state had been much longer sustained than on the previous occasions. The hen bird returned to the nest and made as though to settle on the eggs, but raised herself and pecked once or twice at the crown of the dummy (Fig. 9). Finally however, she settled quietly to brood with her back to the dummy, completely ignoring it (Fig. 10). As the aggressive reactions now seemed practically exhausted, we removed the stuffed bird and left the pair to complete the hatch which, in spite of the emotional turmoil to which we had subjected them, they successfully did.

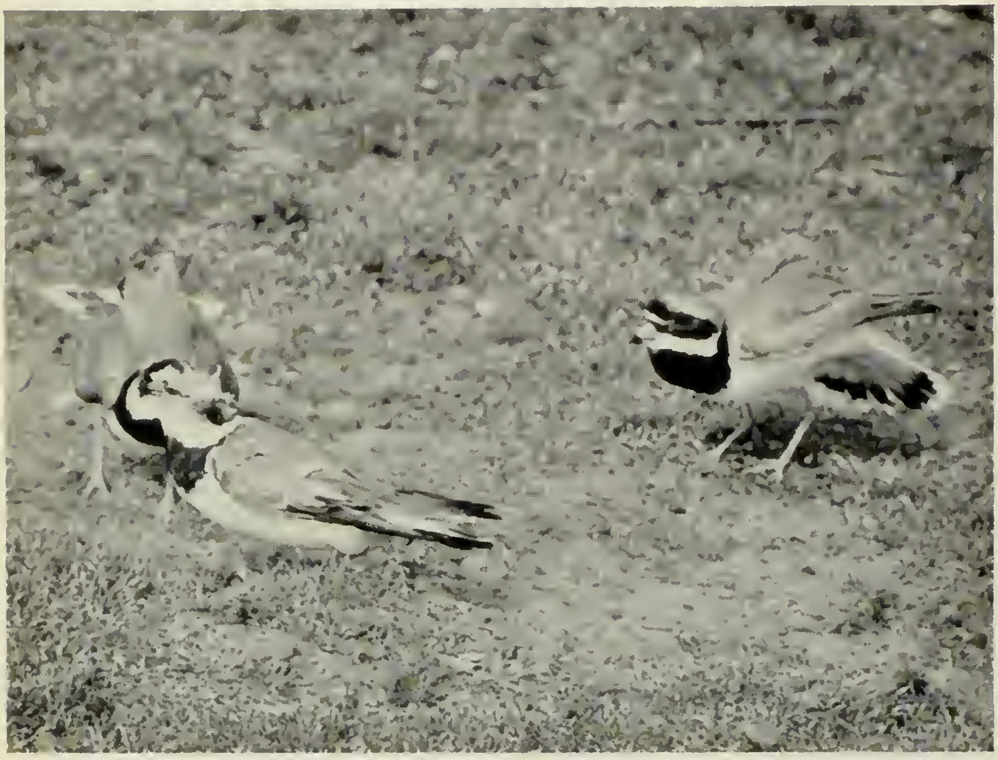
(4) REACTIONS AT A MIRROR.

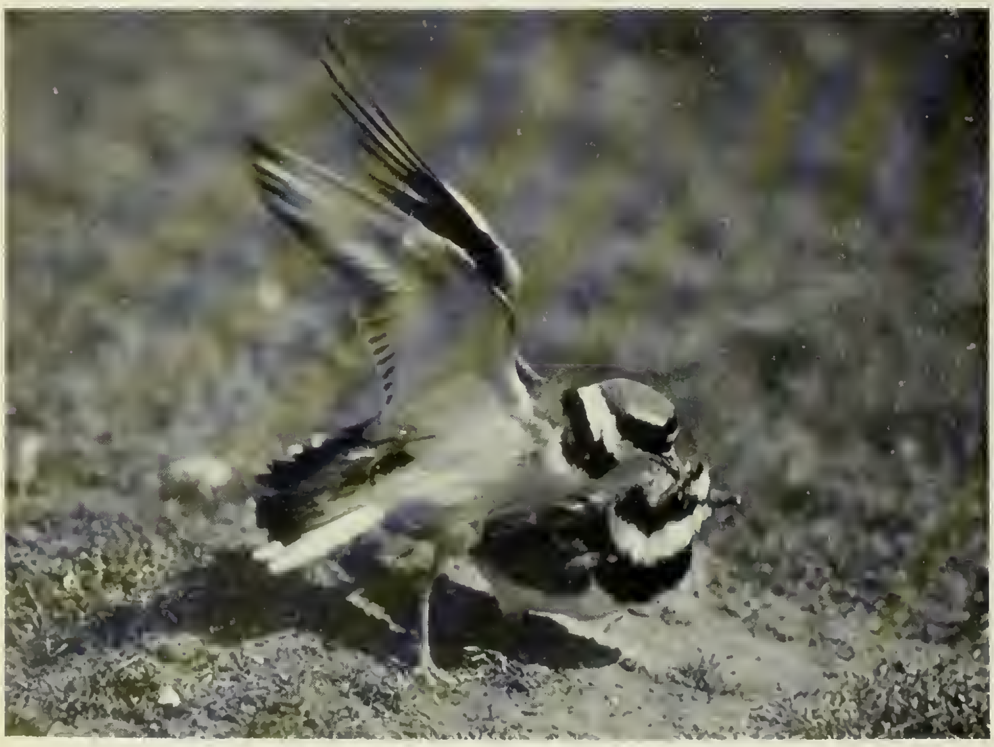
Interspersed between the experiments with the stuffed bird, we carried out several in which a large mirror was erected about six



RINGED PLOVER.

FIG. I. HEN (LEFT) WITH RAISED AND FANNED TAIL ; COCK (RIGHT) WITH

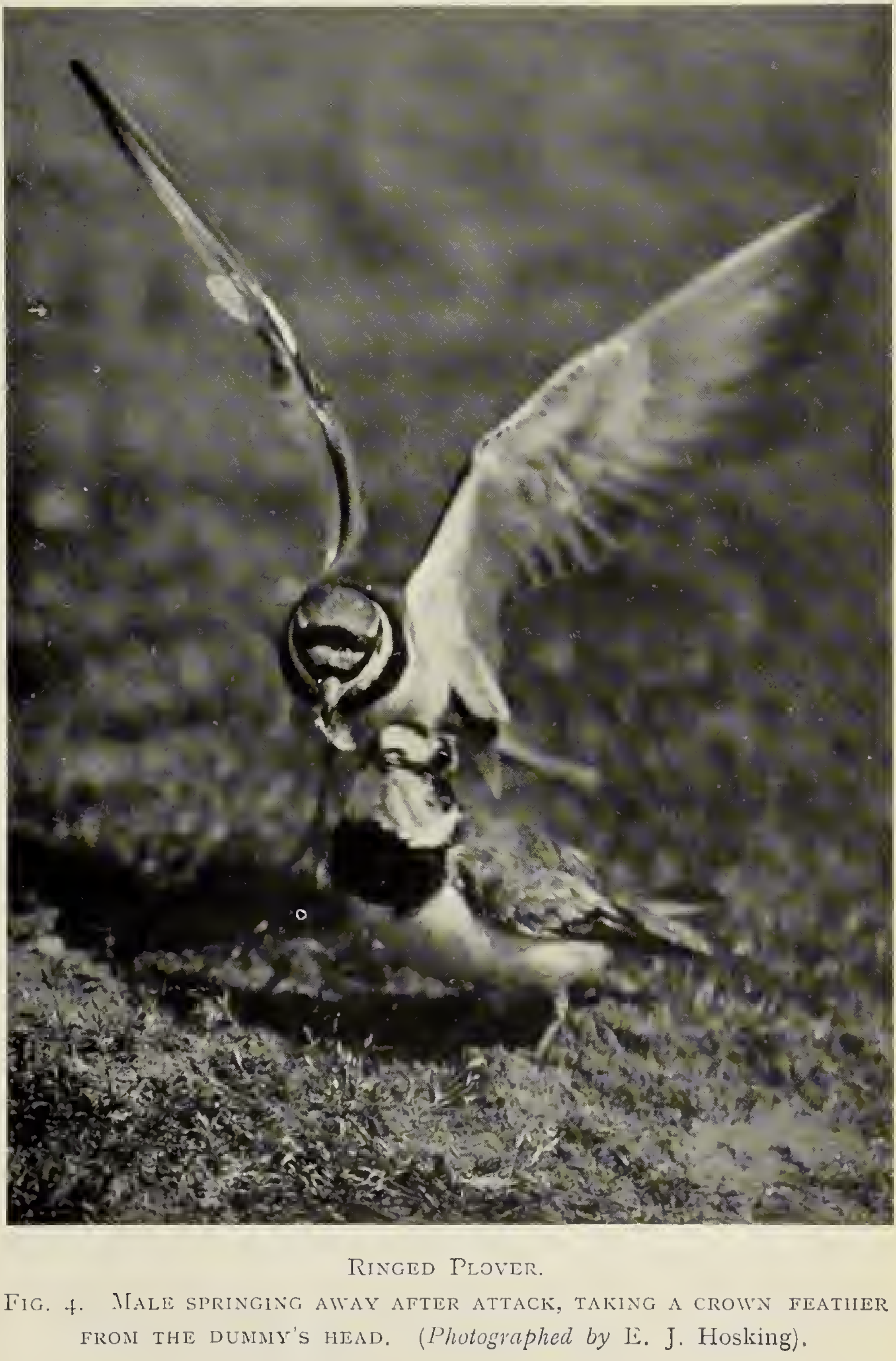




RINGED PLOVER.

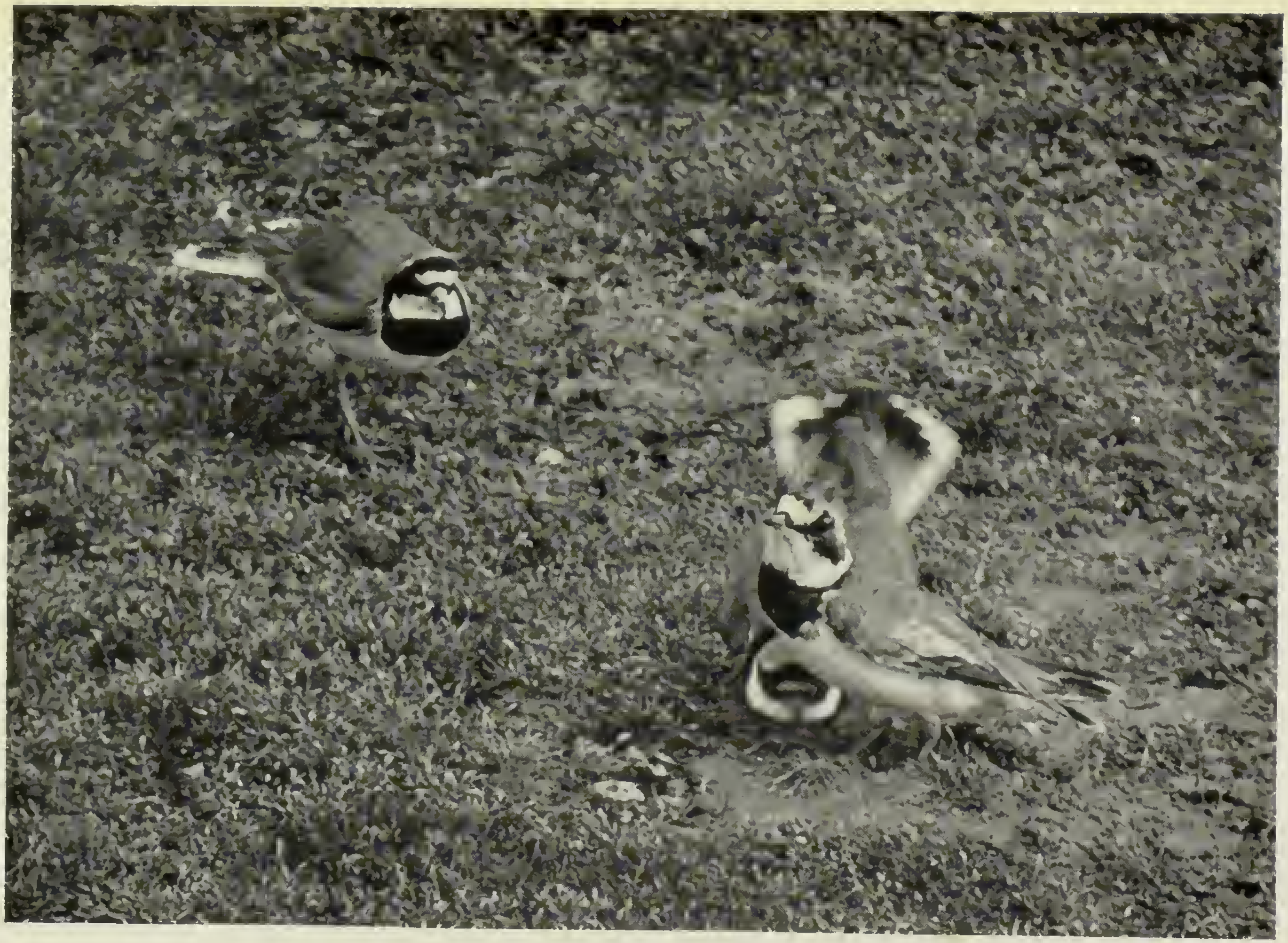
FIG. 2. FEMALE ABOUT TO ATTACK; MALE AT RIGHT.

Fig. 3. FEMALE ATTACKING CROWN OF DUMMY: NOTE FOOT PLACED ON DUMMY'S BACK. (*Photographed by* E. J. Hosking).



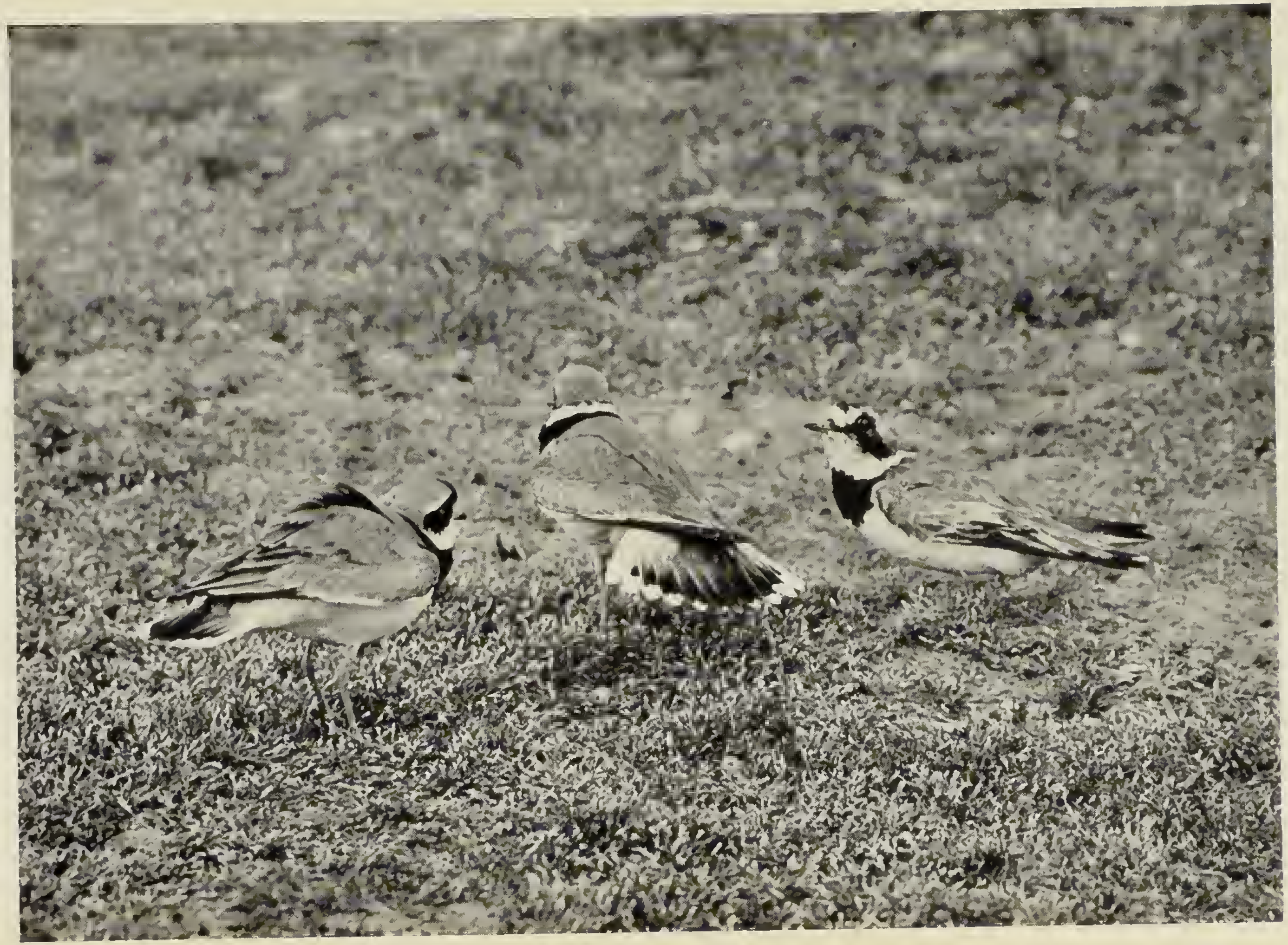
RINGED PLOVER.

FIG. 4. MALE SPRINGING AWAY AFTER ATTACK, TAKING A CROWN FEATHER FROM THE DUMMY'S HEAD. (*Photographed by* E. J. Hosking).



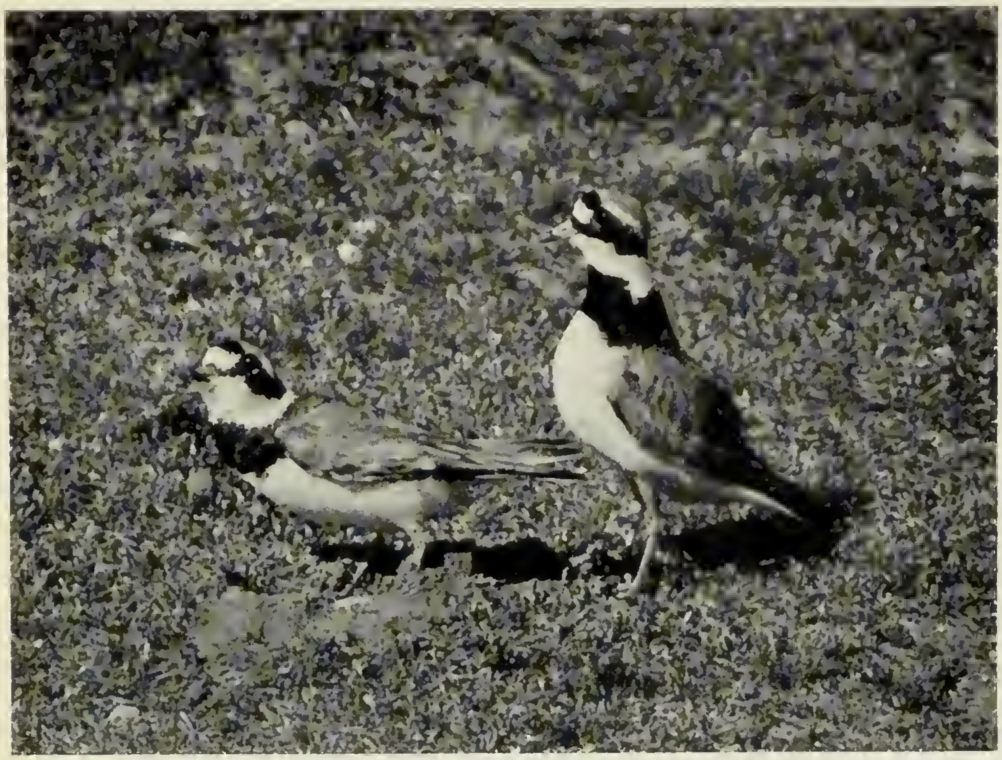
RINGED PLOVER.

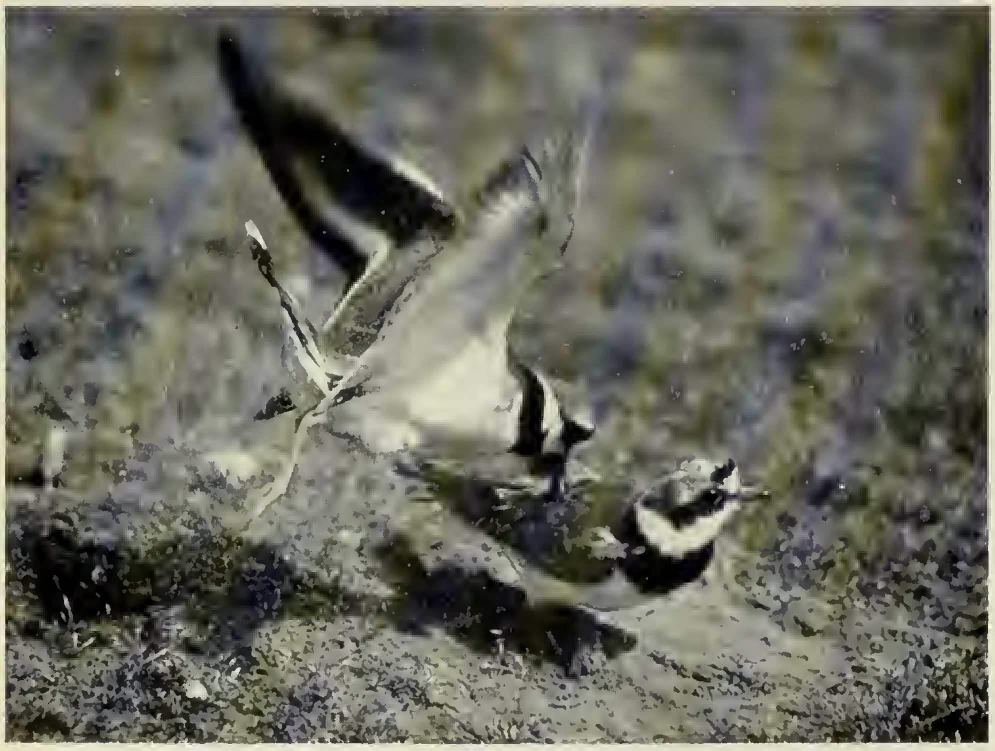
FIG. 5. MALE PECKING AT FEET OF DUMMY; FEMALE AT LEFT GIVING TYPICAL DISPLAY. (*Photographed by* Stuart Smith).



RINGED PLOVER.

FIG. 6. THE MALE, WITH LESSENING REACTION, SWERVES PAST THE DUMMY WITH FANNED TAIL. (*Photographed by* E. J. Hosking).



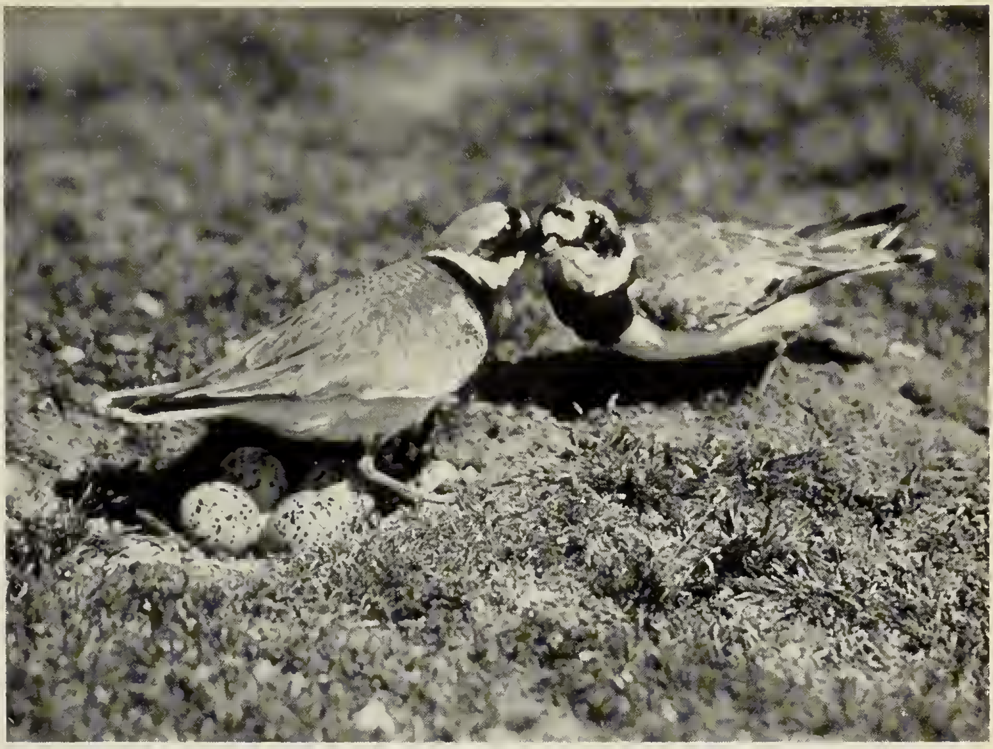


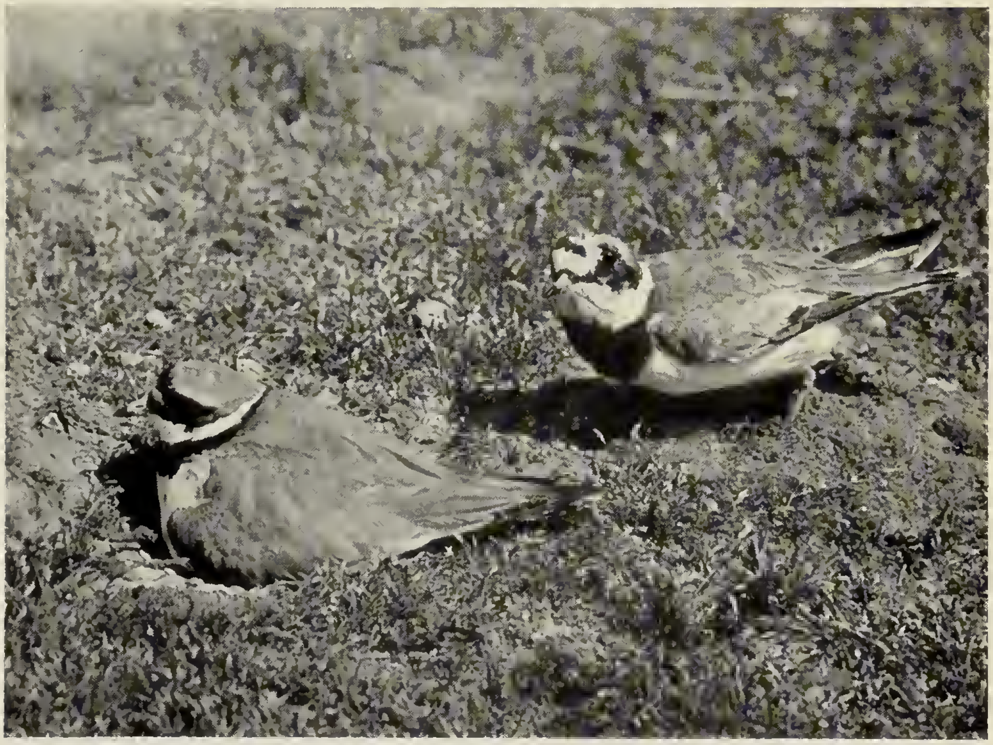
Ringed Plover.

Fig. 7. Male stretching himself above dummy with puffed breast.

Fig. 8. Female striking dummy with feet in "flight-attack."

(*Photographed by* E. J. Hosking).

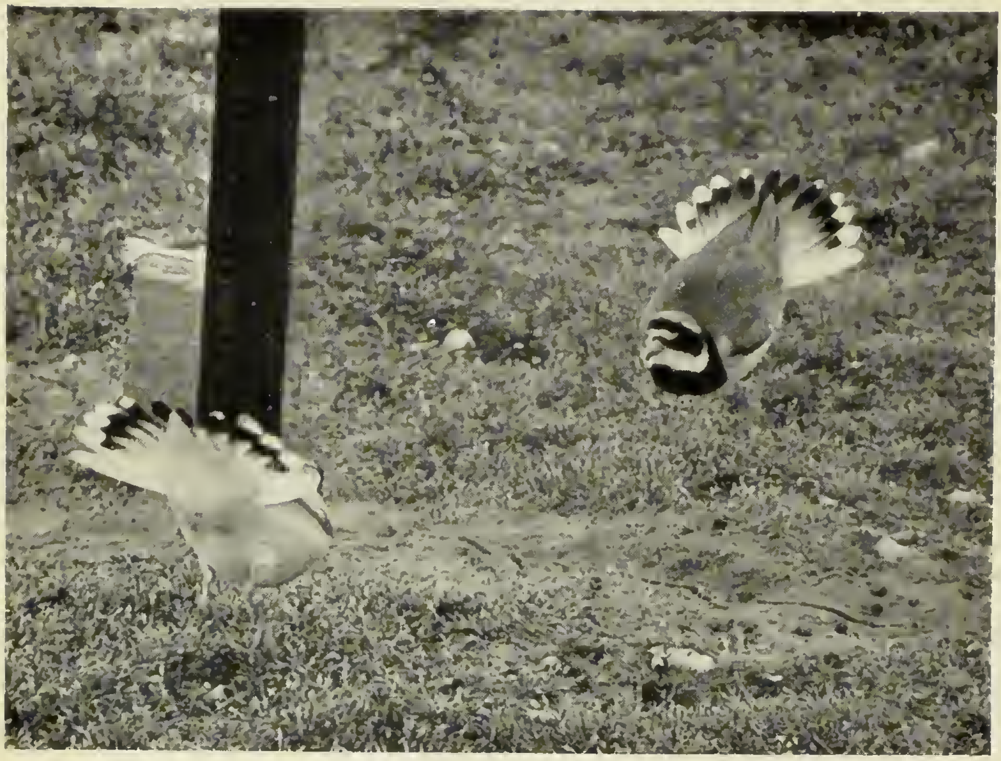


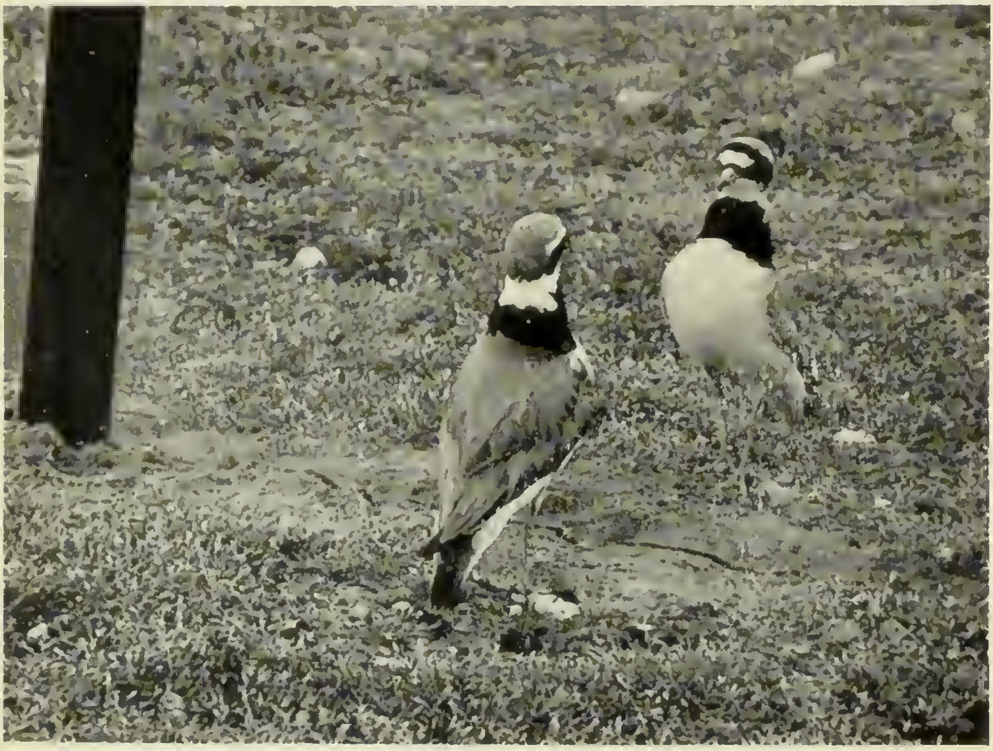


RINGED PLOVER.

FIG. 9. THE FEMALE RAISES HERSELF FROM THE EGGS TO PECK AT THE DUMMY.

FIG. 10. THE FEMALE BROODS QUIETLY, IGNORING THE DUMMY (REACTION EXHAUSTED). (*Photographed by* E. J. Hosking).





RINGED PLOVER.

FIG. 11. TYPICAL POSTURE BEFORE MIRROR, SIMILAR TO THOSE OF FIGS. 1 AND 2.

FIG. 12. UPSTRETCHED ATTITUDE AT MIRROR; COMPARE WITH FIG. 7.

(*Photographed by* E. J. Hosking).

feet from the nest. In the main, the mirror was far less effective in inducing aggressive displays and posturing than was the stuffed bird, but this was generally due to the fact that, in any diagonal approach towards the mirror, the " mirror-image " simply disappeared from the sight of the bird beyond the edge of the mirror as the bird ran across. It was amusing to see the complete confusion of the Ringed Plovers when this happened. Thus they would generally run towards the nest on a course which took them past the mirror at a narrow angle in relation to the lengthwise axis of the mirror. Directly their own image came into view, the birds would hesitate, often go into a slightly hunched-up attitude, and then turn slightly towards the mirror. As they continued, the image moved across the mirror and approached nearer the bird, which then quickened its pace. Before, however, the bird got to a sufficiently close contact with the mirror, it would have moved such a distance that the image had disappeared out of the mirror at the furthermost edge. The bird would then stop as though unable to account for this disappearance of a potential adversary, but after a moment or two would go on to brood. A triple-sided mirror would probably have given better results.

On certain occasions however, the approach to the mirror was more or less a frontal one, and in such instances, posturings were witnessed which were identical with those used against the dummy. There was the usual run up and rush in, with lowered and puffed breast, elevated mantle and scapular feathers, and raised and fanned tail. The birds called with the same rapid "t'lew, t'lew, t'lew" calls and the guttural "crook, crook." The posture adopted is shown in Fig. 11, and this photograph is of value, as it shows both front and back views of the posture at one and the same time.

Nearer the mirror, the bird often adopted the up-stretched attitude, with puffed-out breast feathers very prominent (Fig. 12). This attitude is identical with Fig. 7, where the cock is standing stretched-up over the dummy. Associated with the posture before the mirror was also repetition of the goose-stepping movements of the legs, identical with those performed before the dummy.

DISCUSSION.

The use of a stuffed bird for the study of aggressive display has been employed previously on several occasions. Chapman (*Bull. Amer. Museum Nat. Hist.* 1935, 68, pp. 471-525), experimenting with stuffed specimens of Gould's Manakin (*Manaceus v. vitellinus*) in nesting territories of these birds, found that whilst a stuffed hen elicited a display which was invariably followed by attempts at coition, a stuffed cock was attacked without any attempted coition. On the other hand Allen, in his study of the Ruffed Grouse (*Bonasa umbellus*) (*Auk :* 1934, Vol. 51, pp. 180-199) has shown that the males of this species will attempt copulation with a stuffed male if it be placed in an appropriate crouched position. He obtained similar behaviour too, with mounted specimens of several American passerine species. Lack, in his experiments with stuffed Robins (*Erithacus rubecula melophilus*) (*Life of the Robin*, 1943, Witherby, London), obtained aggressive reaction towards stuffed specimens placed in the winter territories of Robins, and also obtained such reaction in the nesting territory. At three nests where building was in progress, posturings and attacks took place by both cock and hen birds, but all the nests were subsequently deserted. At nests where incubation had started, the incubating females *did not attack the specimen, but went quickly back to the eggs, while the males did not come near the nests*. This is an important parallel to our observation that it needed the dummy *plus* another bird to elicit aggressive display at the nest. In certain instances, some of Lack's Robins attempted coition with the dummy, but we observed no parallel behaviour in our Ringed Plovers.

Finally, the Ringed Plover itself has been the subject of a most intensive and comprehensive investigation into its breeding biology by Laven, which has only recently become available in this country, (*Journ. f. Ornithologie*, 1940, pp. 184-287). In it Laven also experiments with a stuffed Ringed Plover placed one metre from the nest. His description of the aggressive posturing may be summarized as follows :—

"Ten metres from the dummy, the cock postured. The breast was held low, head drawn in, beak pointed straight out, legs slightly bent ; crown, back and underpart feathers puffed out ; wings slightly extended and lifted, tail slightly fanned and lifted. Ten centimetres from the dummy, the breast is lowered nearly to the ground level, the tail erected and fanned and reclosed alternately. The bird calls "tjüp, tjüp". The tail is then lowered but still fanned, and then the bird raises itself over the dummy, breast raised, feathers puffed out, and delivers a peck at the crown of the dummy. The hen was less aggressive at first, but when the cock moved, the hen postured as well. The hen then went on to the nest, while the cock went back to the dummy and stretched itself high over it."

The similarity of these observations with certain of ours is apparent, and in his further observations on the *nuptial* displays of the Ringed Plover, Laven draws attention to the identity, as far as actual posturing is concerned, of a great many of the attitudes used in both displays. This is an aspect of bird display which must constantly recur in the minds of watchers as they study aggressive and nuptial displays ; that there is little apparent difference between the attitudes and postures used by the cock birds towards rival males and those used in pre-coitional nuptial displays. Certainly the aggressive display of our pair of Ringed Plovers duplicated in many ways the nuptial displays we have witnessed from these birds from time to time. Thus the behaviour we have described in which the cock bird stands stretched-up over the dummy with rapidly "goose-stepping" legs was witnessed by Laven and by Selous (*Bird*

Watching, London, 1901) as part of the normal *nuptial* display, and as a preliminary to coition. It could be argued that the somewhat crouching posture of the dummy, combined with emotional excitement, was also eliciting pre-coitional display in our cock bird, but this is contra-indicated by the fact that we saw the same attitude, with the same leg movements, in the case of the display at the mirror-image when this latter would, of course, also be stretched-up similarly, and with moving legs.

Hingston has suggested (see, for example, Huxley's discussion of Hingston's book, *Meaning of Animal Colour and Adornment*, in *Proceedings of 8th International Ornithological Congress*, 1934) that the function of coloured adornment in the animal world is entirely one of threat value (Huxley's *aposematic*) and that sexually significant (*epigamic*) structure and coloration either do not exist or, if they do, subserve direct or modified threat action against the opposite sex. In refuting this, and drawing attention to the high state of development of epigamic structures and colours in birds, Huxley quotes Lorenz for the statement that the same actions are used by males in threat and display only in those species in which the sexes are alike, and that the reaction of the second bird dictates the subsequent behaviour of the one that is displaying. This is borne out, to a certain extent, by the recent field researches of Mason (*British Birds*, xxxviii, p. 351, 1945) where a stuffed Corn-crake (*Crex crex*), used in conjunction with an artificially produced "crake" call, elicited display and *attack* if the "crake" note were answered (apparently by the stuffed bird), but display and *attempts at coition* if the stuffed bird were "silent."

There is a wide field open for investigations of both types of display by such means as we have employed here, for although the two types often show remarkable parallelism as regards posture, it seems possible that small differences of posture and large ones in the emotional states of the birds, may indicate significant differences in the two displays. This, however, can only be shown by a wide accumulation of observations which is only slowly being built up.

We wish to acknowledge our indebtedness to Mr. Reginald Wagstaffe of the York Museum, for the loan of the stuffed Ringed Plover, and to Mr. W. B. Alexander of the Edward Grey Institute, for the loan of papers and journals relating to the literature.

NOTES.

"INJURY-FEIGNING" OF MEADOW-PIPIT.

As instances of "injury-feigning" on the part of the Meadow-Pipit (*Anthus pratensis*) are rare the following may be worth recording.

On June 15th, 1946, in Co. Kerry, I disturbed a Meadow-Pipit from its nest, which contained five eggs.

The bird flew a distance of about one yard, then flung itself upon the ground, lay there fluttering momentarily, then flew on into some rushes. Robert F. Ruttledge.

DISPLAY OF SAND-MARTIN.

Supplementary to A. Watson's note (*antea*, Vol. xxxix, p. 282) on the display of the Sand-Martin (*Riparia r. riparia*), the following observations were made, always on the same restricted area, of a private tarmac road, the surface of which was sanded, on Cambridge Sewage Farm.

On July 4th, 1946, a flock of about 250 Sand-Martins were either over or on the road described. The impression gathered was that the birds were not taking part in the display as individuals, but as pairs. A bird would alight on the road, a second would hover over it with rapidly beating wings for a few moments. This bird would then alight, either to the side or rear of the first bird, and commence approaching with wings extended and depressed, till in close proximity. Both birds would then take flight, indulging in an aerial chase, which gradually lost intensity, and both birds were lost in the flock. This behaviour, as described for one pair of birds was being repeated by many, more or less continuously, for the period during which observation was made.

On the same part of the roadway a similar observation was made on September 13th, 1945, when it was estimated that 2000 Sand-Martins, flocked for migration, were present. A constant coming and going of birds on the roadway was seen. Much preening and sand-bathing was noted. Threat displays were frequently indulged in, the pair of birds concerned circling round each other, with out-stretched wings and fanned tails. Attempted copulation was indulged in. Through binoculars many of the birds were seen to be pecking at the grit ; one was seen to be worrying a small tuft of grass, terrier fashion. The whole scene was one of intense animation and restless activity.

This social display, during the autumn passage has also been described by R. J. Raines (*Cambridge Bird Club Report*, 1944). He suggested that the birds were feeding on small black flies which covered the roadway when he made his observation. When my observations were made, no suitable food was present on the ground.

The Sewage Farm is essentially a feeding ground for the Sand-Martin ; the only breeding sites are those of odd birds nesting in drain-pipes, etc., along the banks of the Cam. The display recorded in July might suggest, that, when there is an absence of suitable community nesting sites, the birds resort to some area remote from individual nests for purposes of mutual stimulation.

ALEX. S. THOM.

ALPINE SWIFT IN HAMPSHIRE.

AT ABOUT 6.30 p.m. on July 18th, 1946, Mr. Terry Jones and I were looking at the ornamental waterfowl on the water meadows of the Test on Mr. Spedan Lewis's estate at Leckford, near Stockbridge, when we observed amongst a number of common Swifts which were hawking up and down the river, a substantially larger bird with a white belly.

During the next half hour this bird frequently passed within 10 yards of us in excellent light, so that its identification as an Alpine Swift (*Apus m. melba*) was absolutely certain.

The most noticeable features of the bird were its large size (about one third as large again as the common Swifts), its stronger and more purposeful flight with much slower wing beats, and its brilliant white belly. When the bird banked towards us, the tawny colour of the back, much paler than that of the common Swift, was observed. The white chin was not at all prominent and was only seen when the bird was at its very closest. For the half hour that it was under observation the bird was apparently entirely silent. It was feeding in exactly the same way as the 50 or 60 common Swifts in the same area.

The Handbook gives "about 40" records for the Alpine Swift in England.

PETER SCOTT.

NESTING OF DUCKS IN CAERNARVONSHIRE.

THE status of several species of ducks in this county seems to need investigation ; in one locality the Shoveler (*Spatula clypeata*) has bred in some numbers for several years at least. At the end of May, 1946, I saw many birds there and found one nest. One pair of Garganey (*Anas querquedula*) was seen (see also *antea*, Vol. xxxviii, p. 335), one pair and three drake Wigeon (*Anas penelope*) and one pair of Tufted Duck (*Aythya fuligula*). The gamekeeper, Mr. M. Speake, informed me that none of these have been proved to nest in the area, though the last two have been seen there in summer for some years.

Further, Captain S. Livingstone-Learmonth informed me that Tufted Duck have definitely nested in Lleyn on at least one occasion in the past ten years, and have attempted to do so on his own property near Portmadoc. *The Handbook* does not record either the Shoveler or the Tufted Duck as nesting in Caernarvonshire.

BRUCE CAMPBELL.

BREEDING OF THE BLACK-NECKED GREBE IN COUNTY DURHAM.

ON June 23rd, 1946, Mr. J. R. Crawford, of Sunderland, observed two adult Black-necked Grebes (*Podiceps n. nigricollis*) on a flooded brick-field in north-east Durham. In spite of the fact that at this season of the year much of the pond is concealed by masses of tall *Typha*, *Sparganium* and other thick vegetation, he saw both birds in open water sufficiently often to enable him to identify them with certainty by the aid of a glass. He revisited the pond on several occasions during July and usually saw both birds ; but from their actions he could not ascertain whether they were actually breeding. On July 23rd, however, he saw one of the birds feeding at least one juvenile, which was riding on the back of the other parent. The young one was so small that its body was wholly concealed by the plumage of the parent and only a tiny head was visible when thrust out for food. It was not until July 28th that the presence of a second juvenile was proved, when two young birds were seen afloat.

On August 2nd, I accompanied Mr. Crawford to the pond and was fortunate enough to see one of the adults and one juvenile afloat, the latter being by this time about 10 days old. The other parent and young, if present, did not come out into the open water whilst we were there. On August 9th I again visited the pond, this time in the company of Mr. W. A. Cadman, when we not only saw the two adults, each attendant on a juvenile, but also a third unattached adult. This bird was very brightly plumaged, in contrast with the breeding pair, whose chestnut head-plumes now appeared somewhat worn. All the birds approached so closely and were so brilliantly illuminated that we were able to confirm without any doubt Mr. Crawford's identification. The adults' black necks and heads, with the distinctive chestnut plumes, were clearly visible, as were their high foreheads and slender tip-tilted bills. A striking feature of the downy young was the general greyish colouring and pure white breast and throat, so different in appearance from the juvenile Little Grebes (*P. r. ruficollis*) of the same age, many of which were also present. The young were still there on August 22nd.

The Handbook (Vol. iv, p. 104) states, "Fish only taken to a small extent" : the birds here under observation appeared to be feeding themselves and their young solely upon fish of about the size of a small minnow or stickleback. The juveniles, when old enough to dive for themselves, invariably emerged with fish in their bills.

This is the first record of the breeding of this species in the County of Durham, where it has hitherto only very occasionally been observed on passage. GEORGE W. TEMPERLEY.

ON August 13th, 1946, I visited a flooded field in N.E. Durham after an absence of several weeks and saw a grebe which, not having glasses, I failed to identify. This locality is some fifteen miles from that at which Mr. G. Temperley obtained positive evidence of breeding this year. On August 15th Mr. S. E. Cook and I returned in the evening and saw the grebes clearly enough to identify them as young Black-necked Grebes (*Podiceps n. nigricollis*). There were certainly others about, but we could only hear them. Those seen were amongst the shyest birds I have ever come across ; they kept close to the reeds all the time, and went into cover at our slightest movement. We were able, however, to get excellent views of them. The last date on which I saw them was September 8th. On that day, besides the two young birds, I had a passing glimpse of two other grebes of the same size, but they retreated into cover so quickly that I could get no details of their plumage. On several occasions when I went to the pond, I saw nothing of the young birds, although I heard them. These young birds were feeding on what appeared to be some insect prey, which they caught on the surface and shook before swallowing.

We frequently heard a note of a rippling character, very different from the trill of the Little Grebe (*Podiceps r. ruficollis*), being louder and not so melodious. This I take to be the rippling note described by E. V. Baxter and L. J. Rintoul (*Handbook*, Vol. iv, p. 102), and their rendering of it as "bidder-vidder-vidder-vidder" seemed to me very satisfactory. H. M. S. BLAIR.

LATE SINGING OF STOCK-DOVE.

ON August 16th, 1946, at Jevington, Sussex, I heard a Stock-Dove (*Columba œnas*) in full song. *The Handbook* chart in Volume iv shows irregular performance during the first week of August, and none at all during the middle of the month. F. M. FIRTH.

NEST LINING OF WADING BIRDS.

The Handbook of British Birds explodes the statement so often repeated in other bird-books that the nests of waders are always "scantily" or "sparsely lined." Dr. C. B. Ticehurst in *The Birds of Suffolk* (p. 392) mentions that the nests of Lapwings (*Vanellus vanellus*) are often "substantial affairs if on wet ground" and quotes an observation of mine that on a very wet marsh in East Suffolk a number of Lapwings laid their eggs on patches of dried horse-droppings where the ground was bare. I have rarely seen a nest in which the eggs were not perfectly insulated from wet. In May, 1946, I picked up the nest of a Curlew (*Numenius a. arquata*) in Cumberland from which four chicks had hatched off two days before. The nest was on a rough wet meadow close to a birch tree and consisted of a solid pad, which half-filled the interior of my hat, of birch-leaves, bents, grasses, and a few birch-twigs and heather-stems. I picked out 821 separate pieces of material, including 30 or 40 birch-leaves. This appeared to be about half the mass, and the remainder, which I had no time to count, formed a pad about an inch deep and three or four inches across. Making every allowance for pieces of grass, etc. being broken up by the weight of the bird during incubation, this is a considerable accumulation of nesting material.

An Oyster-catcher (*Hæmatopus ostralegus occidentalis*)on the Eden river in the same neighbourhood was nesting on a grass ley which had been an oat-stubble in the previous year. The nest was noticeably "floored" with oat-straw, the straw forming a conspicuous patch among the young grasses. On this part of the Eden the Oyster-catcher, possibly owing to disturbance by fishermen, seems to have forsaken the shingle banks along the river and the five nests I saw were one on young grass, two in growing oats and three on potato-fields. J. K. STANFORD.

STONE-CURLEW IN CHESHIRE.

ON June 15th, 1946, we observed, on meadow land at Henbury, near Macclesfield, a Stone-Curlew (*Burhinus œ. œdicnemus*). The bird was first seen running on the ground, and the following points were noted :—

Large size, general colour brown, short bill, long legs, and hurried stooping posture, pausing at intervals. The bird then took off in a low flight to a nearby sandy slope, and the characteristic wing pattern with two white wing-bars was immediately conspicuous. Unfortunately it was too far away for us to see the large yellow eyes, but we are certain that the other points confirm our identification of the bird as a Stone-Curlew.

When we visited the locality on the following two days, a thorough search unfortunately failed to reveal the bird.

On reference to T. A. Coward's *Fauna of Cheshire* (1910), we find only one record of the Stone-Curlew, a dead bird from Hoole. We know of no other later record.

T. E. S. CLARKE AND G. H. HIGGINBOTHAM.

EXCEPTIONAL PASSAGE OF BLACK TERNS IN 1946.

IN RESPONSE to the request (*antea*, Vol. xxxix, p. 288) for information on the passage of Black Terns (*Chlidonias n. niger*) in the spring of 1946, a number of observations have been received ; these are set out below. Although the localities from which reports have been forthcoming are largely those to which Black Terns normally resort on spring and autumn passage, the numbers involved in May, 1946, were quite exceptional. The peak of this migration was reached in the second week of May, when birds were observed from Kent to Lancashire at much the same dates ; the difference in dates between the north and the south of the country are insignificant. The main influx appears to have been from the east, for there are no south coast records, and birds spread inland to the Midlands and north to Lancashire ; the numbers from Devon, Somerset, Breconshire and Glamorgan are small. Three observers mention notes, variously described as "harsh creaking cries" (R.W.H.), a repeated sharp "kek, keek-keek" (G.W.H.) and "bear-bear" (N.H.) (? ="kleeaa" of W. B. Alexander, *The Handbook*, Vol. v, p. 3).

DEVON. Exe Estuary : two, May 9th (P.S.B.).

SOMERSET. Cheddar Reservoir : three, May 12th (R.E.A.). Blagdon : one, May 13th (H.J.B.) ; three, May 20th. Cheddar : one, May 26th. Blagdon : one, June 20th (R.E.A.).

WILTSHIRE. Wilton Water: one, May 5th (J.M.C.).

SUSSEX. Piltdown Pond, eight miles north-north-east of Lewes: five, May 10th (J.M.C.).

KENT. Pegwell Bay area: forty to fifty, May 11th (B.K.M.). Yantlet Creek, Isle of Grain: one, May 12th (T.B.).

SURREY. Frensham Ponds: about sixteen, May 3rd (D.C.); three, May 8th (B.B.); about twelve, May 9th (D.C.). Barn Elms: about eight, May 9th (T.B.); ten, May 25th (G.C.L.).

ESSEX. Takely Lake, Hatfield Forest: one, April 30th (S.E.L.). Hadleigh: one, May 4th (H.R.T.). Upney gravel-pit: one, May 11th. Dagenham Marsh: one, May 11th (M.J.A.).

HERTFORDSHIRE. Tring Reservoirs: birds present May 2nd to May 20th (W.E.G.); ten, May 3rd (R.C.L.P., J.N.H.); forty-one, May 8th (W.E.G.). West Hyde gravel-pits, near Rickmansworth: three, May 8th (J.N.H.). Hamper Mill Lake: one, May 9th (F.C.B.). Tring: forty, May 9th (J.N.H.); thirty, May 10th (W.E.G.); at least twelve, May 11th (D.E.S.). Stockers Lane gravel-pit, near Rickmansworth: "a number," May 11th (A.C.F., R.F.L.). Hamper Mill Lake: three, May 11th (F.C.B.). Tring: "a number," May 12th (A.C.F., R.F.L.); one, May 13th; four, May 15th (J.N.H.); twelve, May 19th (R.S.R.F.); one, May 20th (J.N.H.).

MIDDLESEX. Feltham gravel-pit: one, April 30th (E.O.H.). Staines Reservoir: four, May 8th (J.A.W.). Brent Reservoir: three, May 9th (T.B., R.M.R.). Charlton Lane gravel-pit: one, May 10th (E.W.P.). Brent Reservoir: eleven, May 12th (G.W.). Staines Reservoir: up to forty-three, May 12th (E.G.P.); eleven, May 13th (R.W.H.); six, May 19th (G.C.L.); one, May 26th (J.K.H.). Brent Reservoir: one, June 9th (T.B.).

BERKSHIRE. Burghfield Road gravel-pits, near Reading: six, May 10th; eighteen, May 11th (W.A.S., M.H.S.). Ham Fields: ten, May 11th (P.G.).

OXFORDSHIRE. Cassington, near Oxford: one, May 8th (F.K.B.).

BUCKINGHAMSHIRE. Little Marlow: two flying down the Thames, May 10th (R.V.). Slough: three, May 11th (P.G.).

NORFOLK. Thompson Water, Breckland: two, May 9th (R.S.R.F.). Heigham Sound, Broads: nine, May 11th (L.K.E.). Rockland Broad: about twenty, May 12th. Breydon Water, borders of Suffolk: three, May 13th (R.S.R.F.). Horsey Mere: one, June 24th (S.E.L.).

CAMBRIDGESHIRE. Cambridge Sewage Farm: two, May 2nd; four, May 3rd; two, May 5th; twenty-six, May 9th; forty-two, May 10th; eighteen, May 12th (A.S.T.).

HUNTINGDONSHIRE. Little Paxton gravel-pits, near St. Neots: three, May 10th (C.F.T.).

NORTHAMPTONSHIRE. River Nene, near Oundle: one, May 8th. Gravel-pits, near Oundle: two, May 9th; ten, May 10th (G.W.H.). Whittlewood Lake: two, May 11th (J.F.). Northampton Sewage

Farm : five, May 12th (B.W.T.) ; two, May 20th (P.K.R.). Gravel-pits, near Oundle : one, May 24th (G.W.H.).

WORCESTERSHIRE. Upper Bittell Reservoir, Barnt Green : three, May 9th. Lower Bittell Reservoir : ten, May 10th (C.K.J.).

WARWICKSHIRE. Earlswood Reservoirs : five, May 1st ; two, May 9th ; one, May 14th (W.T.M.).

BRECONSHIRE. Talybont Reservoir : one, May 11th (B.C.).

GLAMORGAN. Lisvane Reservoir : three, May 4th (F.E.).

NOTTINGHAMSHIRE. Gravel-pits by River Trent, 3½ miles east of Nottingham : nine, May 3rd (J.S., H.B.) ; fourteen, May 10th (J.S., R.B.) ; three, May 11th (T.A.M.H.) ; four, May 12th (H.B.). Attenborough gravel-pits, four miles south-west of Nottingham : one, June 2nd (J.S.).

DERBYSHIRE. Bradley Dam, near Ashbourne : one, May 11th (K.M.H.). Ramsley Reservoir, near Chesterfield : one, May 27th (N.H.).

CHESHIRE. Flash a mile north of Crewe : four, May 18th (F.J.B.).

LANCASHIRE. Rumworth Lodge, Lostock : two, May 10th (G.H.B.). Agecroft Colliery Flash ; one, May 10th. Pennington Flash : twenty, May 11th (J.M.H.).

OBSERVERS :

R. E. Alley, M. J. Ardley, H. Barlow, F. K. Benson, T. Bispham, F. K. Boston, H. J. Boyd, F. C. Bromley, R. Brook, F. J. Brown, P. S. Burns, B. Bussell, G. H. Butler, B. Campbell, D. Charlwood, J. M. Cullen, Mrs. F. Edge, L. K. Elmhurst, D. Emslie-Smith, J. Fisher, R. S. R. Fitter, A. C. Frost, P. Gladstone, W. E. Glegg, N. Harwood, J. K. Hasler, R. W. Hayman, T. A. M. Hill, J. N. Hobbs, E. O. Höhn, Miss K. M. Hollick, J. M. Howard, G. W. Humphreys, Miss C. K. James, R. F. Lacey, S. E. Linsell, G. Carmichael Low, W. T. Marsh, B. K. Montgomery, E. W. Pearce, E. G. Pedlar, R. C. L. Pilkington, P. K. Robinson, R. M. Ryall, M. H. Simonds, W. A. Smallcombe, J. Staton, C. F. Tebbutt, A. S. Thom, B. W. Tucker, H. R. Tutt, R. Vaughan, G. Warburg and J. A. Wigzell.

WHITE-WINGED BLACK TERN IN NOTTINGHAMSHIRE.

ON AUGUST 28th, 1946, a day of strong S.W. gales, during a passage of Black Terns (*Chlidonias n. niger*) over the Nottingham Sewage Farm areas, a party of five Black Terns accompanied by a moulting White-winged Black Tern (*Chlidonias leucopterus*) came in. The party was under observation at 15 and 10 yards for a period of about 15 minutes, after which the Black Terns left, followed shortly afterwards by the White-winged Tern. During this period the latter was under observation with 8x glasses and a 25x telescope and the following description was noted :—A darker bird than the Black Terns, which were immatures and adults in all but winter plumage ; blackish markings on the head and nape were less extensive and dark than in the Black Tern ; back, upper wing-coverts and wings were sooty grey, the wings also having a brownish tinge, and the primaries were tipped blackish ; the upper tail coverts and upper surface of the tail were conspicuously white, but not pure white ; the throat and upper breast were grey, the breast at the level between the extended wings was pure black with numerous grey feathers appearing, thus giving a black-blotched effect, under tail-coverts and underside of tail were dirty-white : the underside of the wing was grey, except for the dark-tipped primaries, and under wing-coverts, the latter were blotched with black as the breast, but the blotches were smaller and more scattered than on the breast.

Neglecting the detailed description, the bird resembled a Black Tern in just later than mid-moult, but was easily distinguished from the latter by the white upper-tail surface conspicuous against the dark colour of the back. and the black blotches on the under wing-coverts noticeable at a distance of 30 yards or more, these black markings both on the breast and wing-coverts were pure black rather than the sooty black of even an adult Black Tern.

R. J. RAINES.

[Mr. B. K. Montgomery, who observed the bird in company with Mr. Raines, has supplied independent notes and mentions that the bill appeared distinctly smaller than those of the accompanying Black Terns, an additional confirmatory point.—EDS.]

THE STATUS OF THE COMMON TERN IN NOTTINGHAMSHIRE.

FOLLOWING the first recorded breeding in Notts. of the Common Tern (*Sterna h. hirundo*) during 1945 (*antea*, Vol. xxxix, p. 31) events in 1946 show an interesting extension. A pair arrived early in May at a gravel pond one mile S.W. of the 1945 area, and were seen by the writer and others to be incubating by the middle of the month on a small gravel islet. On June 11th, the adults were seen bringing in fish to three very small chicks in down, all of which latter were reared, the first short flights being noted on July 5th. Meanwhile a second pair of adults settled at the pond on June 15th, and by the 30th were definitely incubating on another nearby islet, and on July 19th these too had three small young, which in turn were all successfully reared.

Again, on July 6th, whilst visiting a section of the Nottingham Sewage Farm some 2½ miles N.E. of this pond, I found another pair of Common Terns very demonstrative, and by testing their reactions was able to find a scrape containing one dry chick, one just hatched and wet, and one unhatched egg, in the centre of a tuft of grass in one of the big pools. There were three small Gudgeon also in the scrape. The adults were seen to bring food to this grass tuft on many occasions, two young being sucessfully reared.

Finally, while I was visiting another large gravel pond some 8-10 miles S.W. of these areas with R. J. Raines, four Common Terns were seen on a small gravel islet. Closer inspection showed two of these to be young ones almost completely fledged, but certainly not capable of flight, and during the next two hours each parent alternately went out to the nearby Trent and returned with fish to feed the young ones. Since earlier stages in the cycle of this family had not been observed, every effort was made to ascertain that these young were not capable of flight, results showing conclusively that the first flight had yet to be made.

From these definite records, and from circumstantial evidence in notes by several observers from 1938 onwards, it seems that the status of this species in Notts. should include—"breeding with some regularity in small numbers." J. STATON.

BREEDING COLONY OF BLACK-HEADED GULLS IN MIDDLESEX.

AT the end of April, 1946, I was driving between the Staines and Bath roads and noticed on the confines of the Heathrow Aerodrome an unusual number of Black-headed Gulls (*Larus r. ridibundus*) in full breeding plumage. Many of them were also uttering the short, harsh call of the breeding-season. I was unable at the time to make any investigation, but on May 4th visited a small sludge disposal works near at hand, to which I had access by the courtesy of the County Surveyor. I then found a considerable number of Black-headed Gulls nesting on one of the ponds, which had apparently not been cleaned for some years. The sludge was very soft and there were large expanses of actual water, and on banks of mud separated from the shore there were the remains of many dead rushes and stalks of strong growing weeds of various kinds. Among these the gulls were nesting. Many of the nests were well teed up, but others not. The birds were excited and it was not possible to make any accurate count of the nests in use, but I judged them to be not less than fifty and not more than sixty.

I was not able to visit the site again until June 9th. By that time a great many birds were hatched, some actually in the water, others standing on the mud banks, others still in the nests. Many of the strongest youngsters were fed by their parents from the air. I again came to the conclusion that something more than fifty pairs had nested.

I was not again able to visit the site until July 28th, when practically all the birds had left. There were three or four juveniles birds swimming in the water and one pair of belated chicks, still in down, near one nest. The water had risen, probably as a result of the recent storms, and submerged part of the banks of mud on which the nests had been made. I may add that a neighbouring but considerably smaller pond, where the mud was dry and no actual water existed in May, was not used by the gulls.

I understand from local inquiries that the gulls first began to nest in the spring of 1941 or 1942, but in much less numbers than when I first saw them. I cannot find that this particularly colony has been reported before, and its existence is an interesting development, though not the culminating point, in the history of the return of gulls of various species to the London area during the last fifty years.

CYRIL HURCOMB.

BREEDING OF BLACK-HEADED GULLS IN GLAMORGANSHIRE.

ON JUNE 1st, 1946, Mrs. Edge noted the presence of Black-headed Gulls (*Larus r. ridibundus*) at Broad Pool, Gower, and found one nest with eggs. On the evening of the same day the site was visited by Mr. Andrews and the writer and we saw one gull rise from a nest with three eggs. No further search was made on this occasion, but on July 14th, I revisited the site in company with Bruce Campbell. There was then only one egg in the nest above mentioned, the others having presumably been taken, but we found five other nests containing eggs and three empty nests. There were fourteen adult birds on the wing. On July 9th, with Bruce Campbell, Dr. C. A. Gibson Hill and Emlyn Evans, I saw seven nestlings, eight adults on the wing and one juvenile. As some of the nestlings were able to swim we may have overlooked others.

This is the first report for a number of years of the breeding of Black-headed Gulls in Glamorgan, and is some twenty odd miles due west of the old site at Kenfig, last used in 1937.

K. B. ASHTON.

EARLY APPEARANCE OF GREYHENS AT LEK AND MALE-TYPE DISPLAY BY FEMALE.

IN VIEW of the statement in *The Handbook* (Vol. v, p. 218) with reference to the Black Grouse (*Lyrurus tetrix britannicus*) that females usually begin to visit the Rothiemurchus leks in mid-April, and the fact that Selous (*Zoologist*, 1910, pp. 177-8) did not see the display of the females until the first week in May, it is possibly of interest to record that when my wife and I visited a lek in Staffordshire in the early mornings of April 6th and 7th, 1946, we found greyhens present on both occasions and once saw a female adopt a display attitude.

The lek was a grassy field adjoining a moor. On the second morning two cocks left the lek and flew to the moor, where one displayed to a greyhen, which apparently took no notice. Both cocks returned to the lek and later two greyhens flew to a dry stone wall in view of the displaying cocks. The hens went down to the lek, alighting outside the territory of even the nearest cock. One hen fed unconcernedly ; the other went into a form of display similar to that of a cock ; with the forked tail raised and fanned and the under tail-coverts erected behind the "fan." The neck was swelled to almost twice its normal size and the body feathers also were puffed out. Presently this pose was dropped and she began to feed, though the neck was still slightly swollen. Selous has described the spread-tail posture of hens in May, regarding it as aggressive show and the accompaniment of actual combat between hens when displaying cocks were near. In the present case the display of one hen had no visible effect on the other (which was feeding) and it may therefore have been influenced by the posturing of the cocks.

Shortly afterwards both hens moved into the territory of the nearest cock. This bird circled round them, but there was no attempt at coition and both hens flew to the next field. The males did not follow. C. B. ASHBY.

[Instances of occasional typical male-type displays by females have been observed in a number of birds, but such behaviour seems particularly noteworthy in a bird showing such strong sexual dimorphism as the Black Grouse.—EDS.]

REVIEWS.

The Hastings and East Sussex Naturalist: Notes on the Local Fauna and Flora for 1945. By N. F. Ticehurst (Recorder).

THIS interesting area again produces a number of noteworthy records. The chief ornithological event mentioned is the breeding of Black Terns on Pett Level during the war, which has already been fully recorded in our pages, as has the establishment of the Oyster-catcher as a breeding bird in East Sussex and the local history of the Black Redstart in 1945. A great increase in breeding Sheld-Duck in the area is noted and a Tufted Duck seen with a brood on Pett Level in June provides the first definite proof of the nesting of that species in the district. About 200 pairs of Common Terns tried to establish a new colony at Rye Harbour and the neighbouring Nook Beach, but were frustrated by persistent egg-robbing. Details are given of a considerable extension westward of the local breeding-range of the Herring-Gull as a result of war-time closure of the coast to the public. At least two pairs actually nested on the remains of St. Leonards Pier. The local Peregrines fortunately seem to have survived the war-time proscription and a pair successfully reared three young. Two Tawny Pipits were seen constantly on Pett Level from the end of February (a surprisingly early date) to the end of April and from their behaviour were thought to be going to nest, but then disappeared ; five were seen there in July and subsequently. A spring movement of Twites on the coast, previously overlooked, was demonstrated by Dr. Joy. Other records which may be mentioned are : a Woodchat near Filsham on June 2nd, a Willow-Warbler identified as of the Northern form, *P. trochilus acredula*, at Littlestone on May 13th (but here some details might have been given), Little Owl nesting in a cornstack, a female Montagu's Harrier of the rare melanistic phase shot at Brookland on August 18th, and a Fulmar seen at the East Cliff on May 22nd.

A record about which we feel some uneasiness is that of five Snow-Finches seen perching on branches overhanging a pond in Alexandra Park, Hastings, by the well-known taxidermist, G. Bristow, on January 31st. As all the four previous Sussex specimens were preserved by Mr. Bristow, he should certainly have known them and, as the Editor points out, the only possible confusion would be with Snow-Buntings, which would not be found in such a habitat. Nevertheless the fact that in their native country Snow-Finches do not perch in trees, even when they descend to levels where trees occur, can hardly fail to raise some misgivings and we think the record should have been at least square-bracketed.

Ornithological Report for the County of Hampshire, 1944. By F. H. Haines (Reprinted from *Proc. Hampshire Field Club and Archæol. Soc.*, Vol. xvi).

THE Hampshire Report for 1944, which was late in appearance, contains some useful material, though somewhat uncritical at times. Under Waxwing is the entry " March, reported from Buriton," but no particulars are given, and it is also recorded that " Mr. G. O. Allen, of the Haslemere Educational Museum, reports one in a garden at Greatham Vicarage on November 9th; one seen in Hatch Lane, Liss, during the same week." We wonder whether this really refers to 1944 or to November, 1943, during the Waxwing invasion. It is good to read that the Dartford-Warbler " appears to be picking up again " in the New Forest area. A record of a White Stork seen flying over Droxford on May 20th is supported by no evidence, which is a pity, as there is no reason why it should not be correct. An interesting record is that of a pair of birds which were evidently Pratincoles seen by a rabbit-catcher, who noticed their swallow-like tail-feathers and sharp call-note in flight and at once recognized them from an illustrated book. A Little Bustard appeared at Avington in early January, and later one was reported at Bighton and Chawton Park, perhaps the same bird. Records of a Black Tern at Chilbolton on December 5th and of a very early Montagu's Harrier on March 24th are unfortunately valueless without evidence. There is no authentic December record of Black Tern for this country, though there are at least two for early November.

A Grey Phalarope at the mouth of the Avon on September 4th and an astonishing congregation of Magpies near East Meon in March—the figures obtained in two counts were 136 and 142 and a local man professed to have counted 240—may also be mentioned. Under Dabchick a remarkably long series of timed dives (over 1,000) obtained in the course of three days in September in one locality by P. Brown and A. V. Symonds deserves notice. The longest was 27 seconds and 70 more of 20 seconds or over, but the mean duration should have been recorded as well.

There are sections on the arrival of migrants and the latest dates for autumn and on song dates.

The 1945 Report has not yet appeared and we regret to learn of the death of the Editor, Mr. F. H. Haines, in March, 1946.

Wild Bird Protection in Norfolk, 1945.

EVENTS in Norfolk, the most famous county in Britain for its bird-life, are a matter of concern to ornithologists far outside its borders and the present report, as usual, contains much to interest them. Though primarily a report on the protected areas it in fact serves much the same purpose as the other local reports as a current history of county birds.

One pair of Roseate Terns bred at Scolt and reared two young. The main colony of Sandwich Terns was at Blakeney, where it is estimated that there were at least 1,000 nests. At least three pairs of Bitterns bred on Cley Marsh. At Horsey the position was less good ; four booming birds represented only about a third of the normal stock, probably a result of the severe weather early in the year. At Hickling, where Mr. Piggin has been appointed as successor to the late Jim Vincent, there were also casualties during this period, but it is gratifying to note that " in spite of this Bitterns are increasing and spreading to all suitable places in Norfolk and further afield." Four pairs of Marsh-Harriers arrived at Horsey and two pairs bred. One pair, which successfully reared five young was noteworthy for their " passing;" "unlike most Marsh-Harriers, who make most of their passes on the ground this pair performed well up in the air." One pair of Montagu's Harriers nested.

Bearded Tits suffered from the snow during the spell of severe weather already mentioned and again, unfortunately, from unseasonable and heavy falls in April, and in the circumstances the record of 11 successful nests located at Hickling is a good one. At Horsey, however, only two pairs bred.

Pochard, a rare breeder in the eastern part of the county, nested and hatched young on Hoveton Big Broad.

Of rarer visitors, a Little Bunting was identified at close range on the Blakeney Point ridge, September 5th-10th, a Woodchat was seen at Hickling on July 1st, a party of eight Waxwings between North Walsham and Ridlington on November 9th, a Sea-Eagle at Didlington on April 18th, and an adult, with white tail, at Hickling on October 25th and subsequently, and a Crane at the same place on April 24th and 25th. "Considerable numbers" of Spotted Crakes were heard at Horsey at the end of October. It may be mentioned that six Glossy Ibises at Hickling, already recorded in *British Birds*, were first seen on October 25th and remained till November 7th. Two were still there as late as November 25th. The Arctic Redpoll, probably *C. hornemanni exilipes*, seen at Stiffkey in November, has also been recorded in our pages. On July 25th, Col. and Mrs. R. F. Meiklejohn saw a wader at the north end of the East Bank, between Cley Marsh and Salthouse Broad, which they are convinced was a Yellowshank of one or other species, but a definite record is not claimed. Another "probable" record is of a Little Bustard at Standford (no date).

A Golden Oriole at Horsey on May 9th was the earliest Major Buxton remembers, and a case of a Red-legged Partridge with a brood successfully attacking a Little Owl may also be mentioned. Another point of interest is the apparent change in the local habits of the Great Black-backed Gulls. These birds formerly visited Horsey Mere and Yarmouth in large numbers during the herring-fishing period, but "do not seem to have realized that the herring-fishing has started again from Norfolk, and may perhaps have found, during the war, other resorts where good food can be obtained with ease."

Report on the Birds of Nottinghamshire for 1945. Compiled for the Nottingham Natural Science Field Club and the Trent Valley Bird Watchers by J. Staton.

THIS report again contains much useful local information and many interesting records from the famous Nottingham Sewage Farm and elsewhere.

The event of the year at Nottingham was the breeding of Black-winged Stilts on the Sewage Farm, which has already been fully recorded in *British Birds*, as indeed have most of the other more noteworthy events, such as the breeding of Sheld-Duck, Common Tern and Lesser Black-backed Gull, and the occurrences of Shore-Lark, Icterine Warbler, Marsh-Harrier, Goshawk, Dotterel, White-winged Black and Gull-billed Terns. There is the usual varied assortment of waders and waterfowl from the sewage farm and waters in the county. As usual, most of the scarcer waders (for inland localities) were observed on the farm, some, such as Knot and Grey Plover, surprisingly frequently. The record of 12 to 14 of the latter on December 21st, in addition to one of 28 at Colwick on January 11th already recorded in our pages, is quite remarkable. Curlew-Sandpipers occurred in numbers up to 20 in mid-September and Little Stints up to 10 on September 16th. Temminck's Stints were again observed on several occasions—as many as six on September 4th. Black-tailed Godwits were particularly frequent, especially in the last half of August (18 on the 21st) and a Northern Golden Plover definitely identified on May 21st. Curlew were again present in the Trent Valley in extraordinary numbers for an inland locality, up to about 200 in mid-August. An Ortolan was identified on September 30th and there are records of Sandwich Tern (apparently an almost regular passage bird in the Trent Valley), Arctic Tern (definitely identified in May and July), Little Tern, Little Gull (on several occasions), and (not on the Sewage Farm) of Whooper and Bewick's Swans.

LETTER.

SEXUAL DIFFERENCES IN THE STARLING : A REQUEST TO RINGERS.

To the Editors of BRITISH BIRDS.

SIRS.—Ringers who trap adult or first-winter Starlings during January to March would serve a very useful purpose by noting whether the eye is entirely dark or has a narrow light ring, and the extent to which the bill has begun to turn yellow at the base. Even when no recovery results, this data will provide information on the proportions of sexes, and on the degree of sexual development of birds in different parts of the country. Enter on the ringing schedule "Eye—dark" or "light ring," and "Bill—dark" or "half yellow base" or "quarter dark tip," etc. ROBERT CARRICK.

NOTICE TO CONTRIBUTORS.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in Italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species : thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals.] The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full : thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and boldly drawn in Indian ink, with due allowance for reduction when necessary.

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SEASONAL FLUCTUATIONS IN THE SONG OF THE SKY-LARK

BY

R. B. CLARK, B.SC., F.Z.S., M.B.O.U.

PREVIOUS WORK.

ALTHOUGH a great deal has been written on the subject of bird song, relatively little is known about seasonal and daily fluctuations in song output. Alexander's [1, 2] work accounts for a very large number of species and gives the dates between which birds will usually be in full song, irregular song and sub-song, but no indication is given of the variations during the period of full song. The bird song inquiry organized by the British Trust for Ornithology [3] did "little more than confirm what was already known about general song periods of common British species." Cox [7] has used the method of counting the number of individuals of a species heard singing during a walk taken over a certain course at regular intervals throughout the year. The study of Yellow Buntings (*Emberiza c. citrinella*) by Wild [16] was of a similar nature. Rollin [12, 13] has made a study of the variation in song output of a number of species throughout a whole day, several times during the year. Song output was measured in this case, in minutes of song per half-hour. This method gives very valuable results, but the time required is so great as to make it impracticable for a study of seasonal fluctuations. Palmgren [11], though like Trebesius [15] interested mainly in the effect of meteorological factors, noted the number of birds of each species in song during each half minute of a ten minute period. The index figure so obtained was taken at regular intervals during the day. An important feature of all the methods except that of Rollin, is that being based on the number of birds singing, variations in song output during the spring and summer months are liable to be masked unless the variations occur almost simultaneously throughout all the birds in the locality. In order to detect variations it is necessary to base observations on the song of individual birds, since clearly the various stages in the breeding cycle will not be reached by all members of a species at the same time.

PRESENT INVESTIGATION.

The present study of the song of the Sky-Lark (*Alauda a. arvensis*) was carried out on birds at Harmondsworth, Middlesex. The area consisted of three large fields with a total area of about three-quarters of a square mile, all under market garden produce. A preliminary survey of the birds of the area was made in the summer of 1943. Data were collected seriously in the autumn of 1943, by the method suggested by Nicholson [9]. The song output of a single bird was noted during a period of half an hour and was multiplied by the number of birds of that species singing within a certain area during the observation period. The song output can be measured in songs per half-hour in birds such as the Chaffinch (*Fringilla cœlebs*) which have a simple, stereotyped song, or in minutes of song per half-hour in such birds as the Sky-Lark which have a constantly varying song. Falconer [8] has used this method in studying Chaffinch song. The main difficulty encountered in the present investigation was the estimation of the number of birds singing ; the flocks were constantly moving about the field and an error of as much as 50% was not inconceivable. Furthermore, although it was possible to keep one bird under observation for half an hour it was quite impossible to note the change in the song of one bird from week to week. In view of all these sources of error, the data obtained during the autumn on the numbers of birds singing were ignored and use was made only of the song outputs of individual birds. During the autumn data were collected at weekly intervals for a thirty minute period between 8.00 and 9.00 a.m., G.M.T. (nearly always from 8.15 to 8.45 a.m.). Observations were made from the same point each week.

During the spring and summer of 1944 this method was modified and individual birds were studied. No attempt was made to note the numbers singing. As in the autumn, observations were made for thirty minutes at weekly intervals and were always made at the same place, though until territory was established there can be no certainty that the same bird was under observation each week. From April 23rd, observations were made on a bird holding an adjoining territory, and from May 21st a third bird was included. Observations were continued until the end of July, after which there was very little song.

During the spring and summer of 1946 further data were collected at more frequent intervals and for periods of one hour. It was hoped to make observations on alternate mornings, but this could not be maintained all summer and in practice observations were made as frequently as possible. Except for an interval of nearly three weeks in May when the area was not visited, the longest interval is five days. The song output was noted between 4.45 and 5.45 a.m., G.M.T. Three birds in adjoining territories were under observation from April 17th until the end of July. During May the territory of one of the birds was ploughed up and the bird moved away. When observations were resumed in June the two remaining birds were watched.

Discussion of Results.

The song output of a single Sky-Lark between September, 1943, and July, 1944, is shown in Fig. 1. The observation periods were too infrequent and too short for the diagram to show clearly the sub-song and irregular song periods of Alexander [2]. The general level of song output in spring is about three minutes in half an hour.

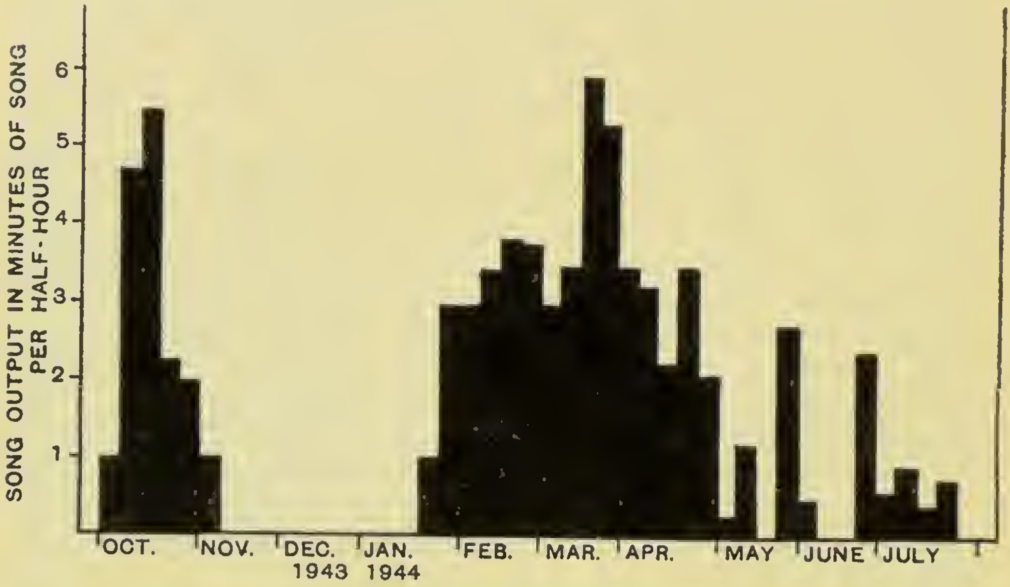

Fig. 1. Seasonal variation in the song output of a single Sky-Lark measured in weekly sample periods, each of thirty minutes.

The main peaks occur in mid-October and early March; that is, there is a rapid growth of song, which is followed by a more gradual decline towards the end of the song period. In Fig. 2, the variation in song output of three Sky-Larks is represented. The bird whose song is given in Fig. 1 is the bird of Fig. 2*a*. The song of three Sky-Larks during the summer of 1946 is shown in Fig. 3. The birds represented in Fig. 2 were subject to no disturbances during the breeding-season, but those in Fig. 3 were severely disturbed in late May and early June. As has already been stated, one bird 3*c*, was forced to leave its territory when it was ploughed up, and the nests of the two remaining birds, which were breeding in a field of rhubarb, most certainly were destroyed when the crop was pulled at the beginning of June.

It is evident from Figs. 2 and 3 that the song output is closely connected with the activity of the male during the breeding-season. Colquhoun [6] observed similar effects in the Blackbird (*Turdus m. merula*) and Song-Thrush (*Turdus e. ericetorum*). He noted the days on which individual birds sang between 6.30 and 8.30 a.m. and tabulated the result against the breeding activities of the birds. As in the Sky-Lark the male bird in both these species takes little or no part in the building of the nest and incubating of the eggs [17], though Ryves [14] states that the male of all these species may occasionally brood the eggs. Colquhoun found that the cock Blackbirds and Song-Thrushes refrained from singing during the period of nest-building and incubating, but that a number resumed song when the young were being fed, a duty in which the male shares.

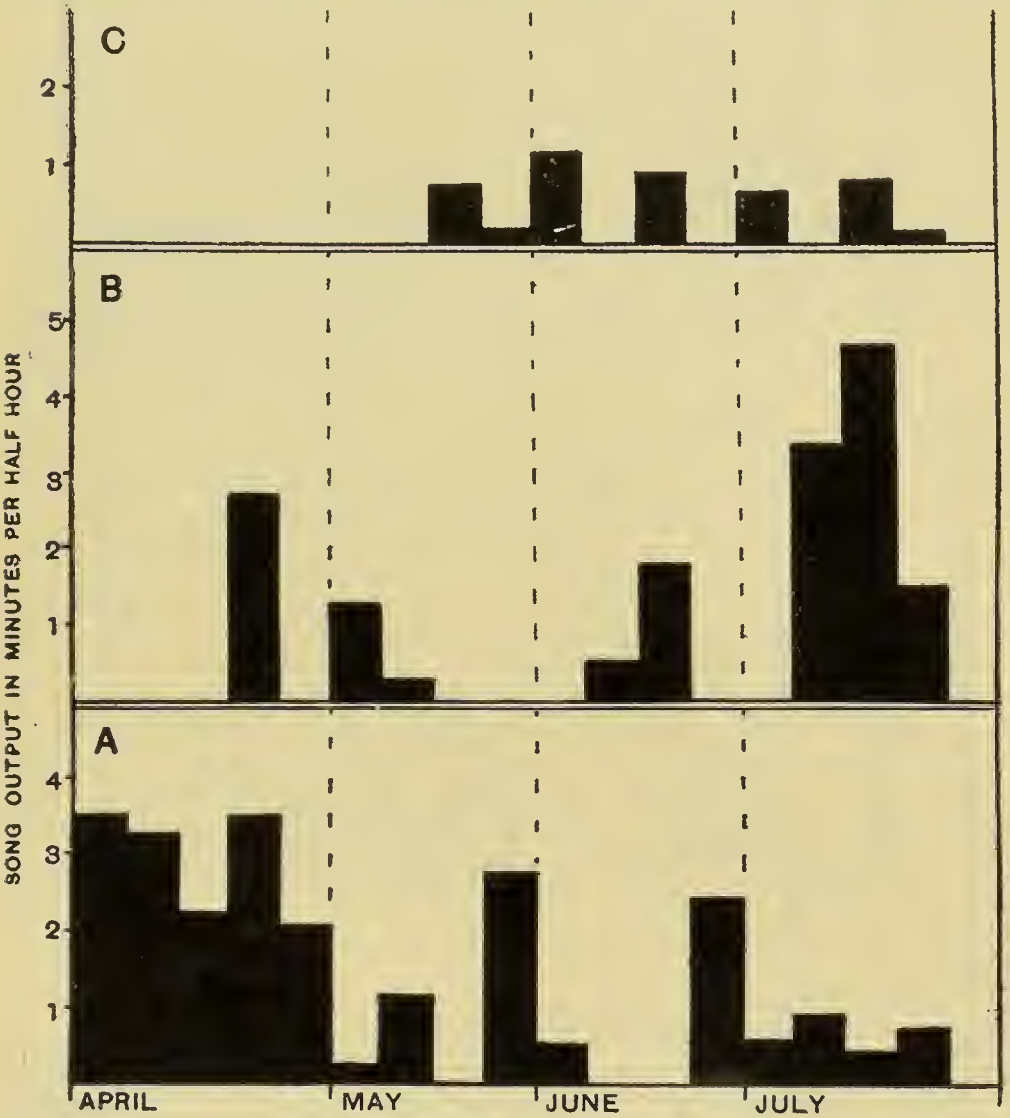

FIG. 2. SONG OUTPUT OF THREE SKY-LARKS DURING THE BREEDING-SEASON OF 1944 MEASURED IN WEEKLY SAMPLE PERIODS, EACH OF THIRTY MINUTES.

It may be assumed that the Sky-Lark nests in 1946 were destroyed when the rhubarb was pulled. The bird 3*a* was not disturbed after June 12th nor bird 3*b* after June 14th ; on the next observation day song had dropped to a very low level in each case. The length of all such " quiet " periods is given in Table 1. The incubation period of the Sky-Lark is eleven days [17], which is in approximate agreement with all the periods of reduced song, if time is allowed for nest

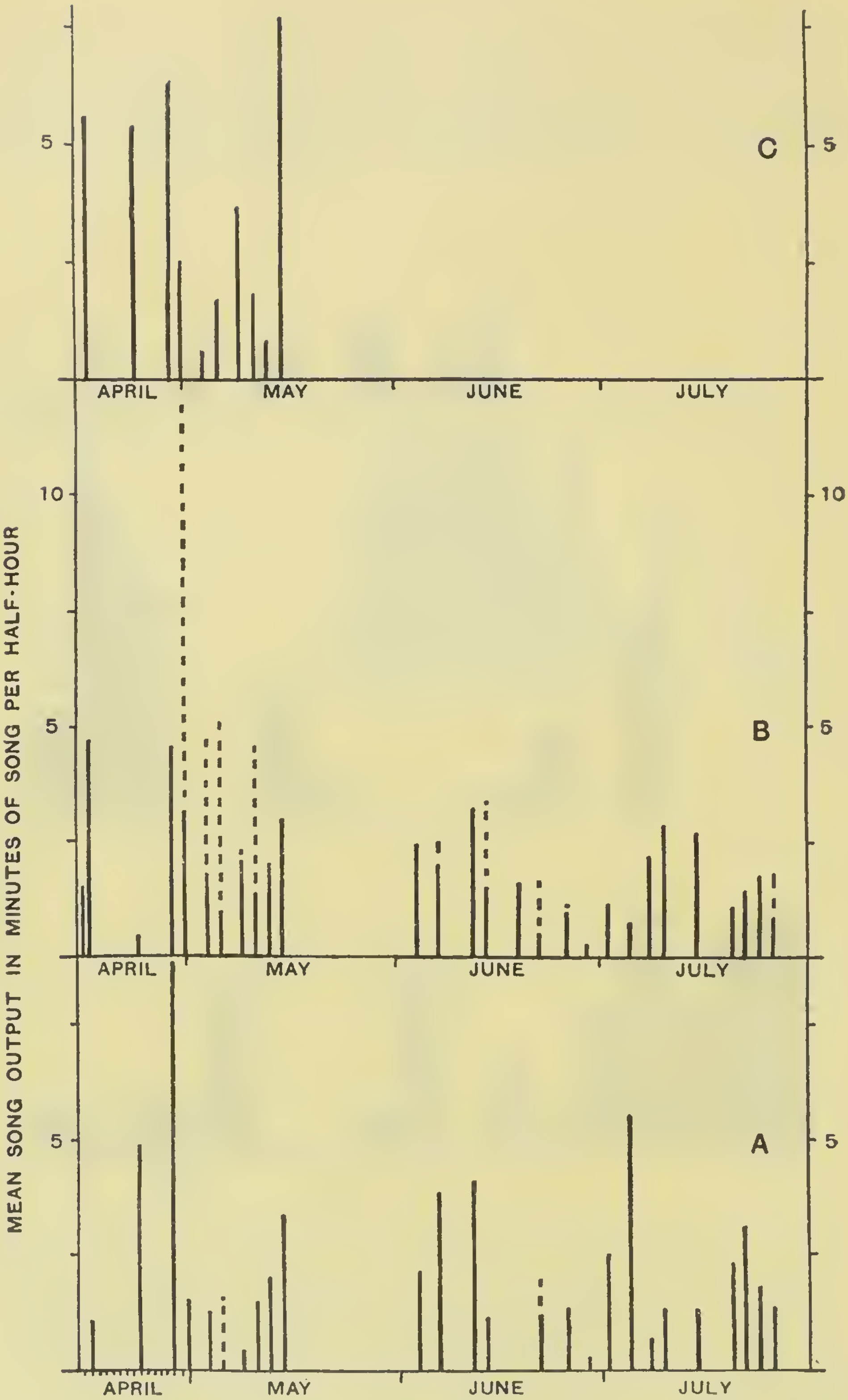

FIG. 3. 'Variation in song output of three Sky-Larks during the early summer of 1946. Broken line represents song from the ground ; full line, song from the air. (Bird A silent on June 19th).

building and egg laying. The first period of bird 3*b* is not very definite. The isolated record of one minute's song on April 24th can hardly constitute a period of reduced song, but if song delivered from the ground is discounted, a "quiet" period is apparent at the beginning of May. The characteristic song flight is so much a part of the song that when the bird sings from the ground it may well indicate a reduced song "impulse." It is this period in May that has been used in Table 1. The interval between the second and third quiet period of bird 3*a* is at the most only eight days, which is not long enough for the second brood to have been fledged (the other alternative is that it was destroyed), in which case, presumably, there was an overlapping of the second and third broods. This is not unknown, as Osmaston [10] showed in the Robin (*Erithacus rubecula*), but in such a case the male bird takes charge of the young while the female rears the next brood. If such is the case here, it is difficult to see why the male should be influenced by the behaviour of the female when he himself had young to feed.

TABLE I.

DURATION OF PERIODS OF REDUCED SONG IN THREE SKY-LARKS DURING THE SPRING AND SUMMER OF 1946.

Bird.	First "Quiet" Period	Second "Quiet" Period	Third "Quiet" Period
3*a*.	13–15 days	16–20 days	7–15 days
3*b*.	10–14 days	17–23 days	—
3*c*.	13–15 days	—	—

Naturally the data collected in 1944 offer less conclusive evidence for this connexion between song and breeding activity, but the fluctuations can clearly be seen in all three cases (Fig. 2). It has been noticed in 1946 that frequently on days when song was at a low level no song was produced between 7.30 and 8.00 a.m., when the area was often revisited. No exact data were obtained, but this no doubt explains why the days without any song which are so noticeable in Fig. 2 do not occur in Fig. 3. Except in the case of bird 2*c*, which sang on alternate weeks, the usual "quiet" period was two to three weeks and the period of song about two weeks, giving a combined total of four or five weeks, which is in agreement with the *Handbook* figure of 30-31 days for the brood to be hatched and fledged.

Thus there is strong evidence that the song output of the male Sky-Lark is very closely linked with his activities during the breeding-season. There are indications that he is comparatively silent while the eggs are being incubated, but when he shares in the task of feeding the young song is resumed. In this respect the behaviour of the Sky-Lark is similar to that of the Blackbird and Song-Thrush.

INDIVIDUAL DIFFERENCES.

The song of neighbouring birds was by no means delivered in the same way. In 1944 it was noticed that bird *2a* favoured long songs of two to three minutes, while bird *2b* sang in short bursts of 30 seconds; they had the same total output at the end of half an hour. Bird *2b* at the end of the season suddenly produced two very long songs on consecutive weeks causing a perhaps rather misleading peak in the diagram (Fig. *2b*). In 1946 it was found that bird *3b* often sang from the ground and a distinction has been made in the figure between song uttered while on the ground and that uttered during the usual song flight. In 1944, bird *2a* began to sing from the ground a great deal at the very end of the season. Apart from these two cases song was not very often uttered from the ground. As the season progressed the quality of song appeared to deteriorate, getting much less varied in character. There was no way of measuring the quality of song and such observations are purely subjective. In 1944 a number of birds was heard to sing for long periods throughout the season apparently without much fluctuation. No data were obtained, but the birds were probably unpaired.

ACCURACY.

The main objection to be levelled at work of this kind is that the observation period is not at a fixed time, but constantly varying with respect to sunrise. It would not solve the problem, however, to fix the observation period relative to the hour of sunrise, as in February the song of the Sky-Lark does not commence until well after dawn, while in April it commences some time before dawn.

Although not dealing with the Sky-Lark, Burkitt [4] working in N.W. Ireland, and Clark [5] in N.W. Kent, have both shown the extent to which the time of commencement of morning song is variable. In the cases of the Blackbird, Song-Thrush and Chaffinch (*Fringilla cœlebs gengleri*) they obtained a large measure of agreement and showed, for example, that the song of the Chaffinch commences in February 15 minutes after and in June 27 minutes before sunrise (Burkitt). Certainly a similar state of affairs exists in the Sky-Lark. It seems that the errors so introduced cannot very well be avoided unless the song for the whole day is measured, as Rollin [11, 12] has done ; to do this once a week would put a very great, and perhaps unnecessary, strain on the observer's time. Fig. 1 does at least represent the song output of the Sky-Lark between 8.00 and 9.00 a.m. throughout the year, if not the variation in the impulse causing song. However, the important fluctuations in May, June and July are not appreciably affected by this variation in the time of sunrise. Between mid-May and the end of July there is only a maximum variation of 15 minutes about a mean value in the sunrise, which is no greater than the variation in the time at which the observation period began in 1944, while in 1946 no such variations occurred.

EFFECT OF WEATHER ON SONG.

It is only to be expected that at the time of the great outburst of song in early spring, weather can have but little effect on the output. In the case of the Chaffinch, Falconer [8] records that in March song was not affected by fluctuation in weather. " For example, a warm and fine afternoon following a cold and dull morning did not induce afternoon singing. Nor did a period of sunshine during a dull day appreciably increase the singing activity." At other times of the year weather undoubtedly does have a great influence on song. In the present survey, special attention was not paid to weather, but rough notes of the conditions during each observation period were kept. In 1944 snow and hard frost at the end of February and the beginning of March occurring when song had already begun, only slightly checked the upward trend of the diagram. In other years I have noticed that frost and snow occurring before the song period has commenced may delay it for several weeks. On the first week of March birds were even singing during a snowstorm. Exceptionally fine days coincided with abnormally high peaks (Figs. 1 and *2a*) in April (fourth week), May (second and fourth weeks) and June (fourth week), 1944. Since these coincidences do not occur in either of the other birds (Figs. *2b* and 2) no great importance can be attached to them. Although it is impossible to indicate it in the figure, the song period in autumn 1943 was abruptly brought to an end, in one day, by fog and cold weather.

Fog is a factor which affects Sky-Lark song very adversely. Unfortunately none of the data were collected on foggy days, but observations at odd times have led me to wonder if there is some relationship between visibility and the number of birds singing from the ground and low perches. On one day in particular, I found a number of birds were singing from the ground and none from the air when visibility was less than 50 yards. Later on the same day when the fog had lifted to a certain extent (visibility above 250 yards) all but two of the same birds were singing on the wing and these two from perches near the ground. Similar observations have been made on other occasions, though on one day when visibility was, at most, 50 yards I found several birds singing on the wing. The birds always seem to sing within sight of the ground in mists ; at any rate they have always been observed to be visible throughout the song-flight. These observations were all made in early spring.

Palmgren [11] showed that during the course of a fine summer's day on the Aaland Islands, the song output of birds, without regard to the different species, closely followed the changes in relative humidity. Rollin [12] gives graphs showing the total output of Sky-Lark song over an area near South Shields on a very fine day (June 1) and a very windy day (June 16)*. There appears to be more than twice as much song on the fine day, though on that day a larger area was under observation. Since his graphs represent the combined song of the birds in the area, the variations in output in May and June are largely obviated. He also notes that on windy days song output is largely made up by birds singing on the ground. On fine days outside the two main song periods a few birds can be heard singing as a rule, especially between November and February. It seems likely that the weather conditions are directly responsible for these songs, and that the question of æsthetic appreciation in birds must be considered in this respect. The autumnal song period occurs far too unanimously and regularly to be directly attributed to weather conditions, especially as birds often sing under comparatively unfavourable conditions at this time.

During the 1946 study no adverse weather conditions were encountered. Dull mornings and slight rain did not reduce song nor did very bright mornings increase it. As observations were not started until mid-April wintry conditions were avoided.

Undoubtedly the effect of meteorological factors on song is a very complex phenomenon ; no one factor will be dominant, but rather the resultant of all the factors operating at a given time in different strengths must be assessed, together with the physiological and psychological state of the bird.

SUMMARY.

Methods used by various authors of recording the song output of birds are reviewed. The song output of three Sky-Larks in adjacent territories at Harmondsworth, Middlesex was measured in minutes of song per half-hour (8.15-8.45 a.m. G.M.T.) in 1944 and in minutes of song per hour (4.45-5.45 a.m. G.M.T.) in 1946. Diagrams showing the song output of these birds are given. It is apparent that the song output is closely related to the activities of the male during the breeding-season. The male birds are relatively quiet while the nest is being built and the eggs incubated, but resume song when the young are being fed. Notes on the effect of weather are also given. When the breeding cycle is begun adverse weather conditions do not appreciably affect song ; they may do so to a greater extent during the autumn song period and the first weeks of the spring period. During the winter, song is probably entirely dependent upon favourable weather conditions.

*"Windy day" is of course a purely relative term. I have found Sky-Larks on the north coast of Cornwall singing well in winds that would have put a stop to all song in Middlesex.

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*I have been able to locate and see only the first of this series of papers.

BLUE SNOW-GEESE IN CO. WEXFORD

BY

JOHN BARLEE AND ROBERT F. RUTTLEDGE.

On January 8th, 1946, at the end of a long day on the North Slob, Co. Wexford, Ireland, and with light beginning to fail, we saw two geese amongst a large flock of Grey Lag-Geese (*Anser a. anser*) which had what appeared abnormal marking of the head and neck. We both concluded that they were freak Grey-lags and did not see them again during the next two days.

Ruttledge, in correspondence with Mr. Peter Scott, mentioned the birds and gave details of the plumage as seen. To Mr. Scott is due the credit for having at once suspected that they were probably Blue Snow-Geese (*Anser cærulescens*) and for urging further investigation after persisting in the possibility that they were of this species. He very kindly supplied us with the main constant field-characters of this goose. Unfortunately, Ruttledge was then unable to re-visit the Slob owing to indisposition. It was, however, arranged that the Rev. P. G. Kennedy should go down to the place. Accompanied by Mr. P. E. Dunn, he made extensive search during a week-end. The following week-end, Messrs. John and Ivan Goodbody were asked to investigate. Both parties failed to trace the birds and it was then feared that they had left.

On April 18th, Barlee, en route to the Saltee Islands, visited the North Slob. He at once found one white-headed goose, which, under excellent conditions, he had no difficulty in identifying as a Blue Snow-Goose. Ruttledge was summoned by wire and arrived on April 20th, and within an hour he had found and clearly identified the same bird. He made independent notes and later it was found that these entirely corroborated Barlee's observations.

Before leaving the Slob on April 20th, he found another Blue Snow-Goose at about 800 yards distance from the one he had been watching. On April 21st he again saw these two geese, but although he covered the whole of both the North and South Slobs he could find no others and could hardly have missed one had it been present. On April 22nd, Barlee, with the Messrs. Goodbody, returned from the Saltee Islands, and all of us had excellent views of the two birds.

Since neither of the birds seen between April 18th and 22nd was similar in plumage to the second bird seen on January 8th, and since the theory that a plumage change from juvenile to adult might have taken place does not appear to fit the facts, it seems certain that three Blue Snow-Geese were present at one time or another on the North Slob during the winter. For the sake of description of each they are referred to as bird A, B and C. Birds A and B were observed under excellent conditions and were watched through a x 30 telescope and x 8 and x 7 binoculars. Bird A was seen very clearly by Barlee, who made detailed notes, and by Ruttledge, who had the bird under observation for nearly two hours at ranges varying from 150-300 yards. Bird B was always seen at rather longer range, but ample notes were made and it was clearly identified.

The following are the detailed observations :—

Bird A.—Bill brownish-red, sometimes orange-red and at times definitely orange. Base of lower mandible black or very dark brown (R.F.R.) ; mahogany-pink tending slightly to orange, occasionally appearing orange (J. B.). Bill large and shape of forehead similar to Eider-Duck (i.e. no angle between forehead and bill).

Head and neck pure white except for a small black spot (possibly one feather) on back of the head. The white on the neck extended in front to barely half the length of the neck, but at the sides it sloped rearwards and at the back reached almost to the base of the neck. At the right side a thin line of brown ran vertically into the white for about two inches. On the other side a slight point invaded the white and the demarcation on the sides was not absolutely regular (see Fig. A). The chest and under-parts, including the under tail-coverts, were sooty-brown. The region of the vent was slightly paler. No markings on chest. At the base of the neck there was a small area of the darkest colouring on any part of the bird. This was only noticeable at certain angles.

Mantle and upper-parts much as White-fronted Geese, but darker than Grey-lags. At times the back would show a somewhat dappled appearance. There was a light line running along the folded wing, caused, no doubt, by the light-coloured feathers of the front edge of the wing. From the region in rear of the mantle 6 to 8 long curved feathers were very noticeable. These feathers hung down over the speculum area and at times the wind would ruffle them. They were about four inches in length and grey or white in colour (J.B.) ; appeared greyish with a lighter edge and were very noticeable when the bird walked away, showing then like a series of "spines", giving a grid-like appearance (R.F.R.). The area, seen broadside, showed pale even at 300 yards, through binoculars.

Tail-feathers and upper tail-coverts white. This was a helpful character in this particular bird, enabling it to be picked out easily in a flock when flying away, but is not constant (see bird B).

Legs a dirty leaden-colour with a tinge of yellow (J.B.) ; a dirty putty-colour sometimes showing pinkish-brown (R.F.R.).

Wings : in flight these were noticeably longer than those of White-fronts and appeared more pointed and narrower, due to the contrasting steel-grey wing-coverts and dark primaries.

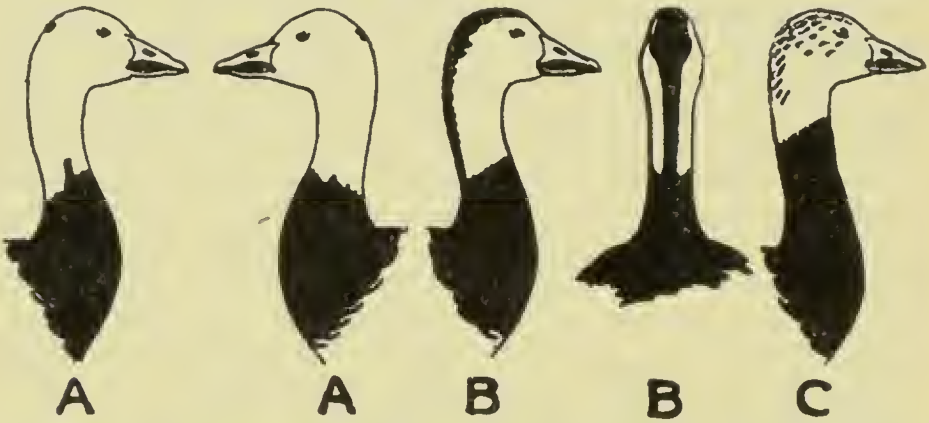
The neck looked long and slender, much more so than in either White-fronted or Grey-lag.

Bird B.—Seen to best advantage on April 22nd. The characteristic curved feathers were observed. In general the body plumage was similar to Bird A, but the upper tail-coverts were dark and the tail similar in pattern to White-fronted Geese. The following differences, however, were noted (see Fig. B). Face and forehead white. Neck white in front to about half the length, sloping rearward at the sides. On the crown brown, resembling a skull-cap in shape, this colour continuing down the back of the neck in a mane about one inch broad joining the mantle. From the side this dark marking was just visible.

BIRD C.—Seen on January 8th only. Head white with a number of dark feathers, particularly on the cheeks. Crown slightly streaked brown (rather similar to head plumage of adult Common Gulls (*Larus c. canus*) in winter). Only a very short portion of the neck was white, less than a quarter of the length (see Fig. C). Although the diagnostic curved feathers were not seen it seems reasonable to suppose that it too was a Blue Snow-Goose. The head and neck markings were sufficiently well seen, and noted at the time, to prove that it was a different bird from both A and B.

GENERAL OBSERVATIONS.

Size—Rather larger than White-fronted Geese, but not nearly so ponderous in movement as Grey-lags. Once seen to run quite rapidly in company with several White-fronts in order to join a party indulging in mild display.



HEADS OF BLUE GEESE (*Anser cærulescens*) SEEN IN CO. WEXFORD.
(*Drawn by* Peter Scott from details supplied by the authors).

When seen on January 8th both birds A and C were close together and were in company with Grey-lags. In April birds A and B were never seen together and never closer to one another than *c.* 800 yards. Both birds seemed to keep with selected parties or companies of White-fronts. They never were seen in company of Grey-lags, the majority of which had, however, left by then. When birds took flight it was noticeable how the Blue Snow-Goose would very rapidly take the lead and remain there in all evolutions until the party landed again. It was noticeable how if the Blue Snow-Goose got away to a bad start, it would go right through the company and get the lead.

The possibility that these birds were "escapes" cannot be overlooked. Doctor John Berry (for Scotland) and Mr. Scott (for England and Wales) have made extensive and careful enquiries from the owners at all places where Blue Snow-Geese were known to have been kept "full-winged." Such places include Birkhill, Culherty, Fox Warren Park, Lilford, St. James's Park, Tayfield, Walcott Hall, Whipsnade, Wormley Bury, etc. We ourselves have enquired of the Belfast Zoological Park and the Zoological Gardens in Dublin. Doctor Berry had such carefully made notes and photographs of two of his birds that had escaped from Tayfield in Scotland that these may be discounted.

The evidence of "escapes" from English collections is negative with the important exception of birds which flew away from Whipsnade—three in 1941 and five in 1942. It should be noted that one of the Wexford birds was almost certainly a 1945 bird. There is, of course, the possibility that the Whipsnade "escapes" bred somewhere in Europe to produce this bird. The possibility of escapes from Continental sources may be fairly excluded.

In view of the escapes from Whipsnade, it must unfortunately remain uncertain whether the birds seen in Wexford were wild visitors from America or not. There remains a definite possibility that they were, in view of which it seems desirable that the facts should be recorded. Full details of the enquiries made together with a considered summing up of the facts will be placed for record with the British Trust for Ornithology at Oxford and with the Royal Irish Academy in Dublin.

We are most grateful to Mr. Scott for the figures which he has so kindly drawn and also for reading through the manuscript, and to Mr. B. W. Tucker for his advice. Our thanks are also due to Mr. J. L. Nunn, who in the first place gave us permission to wander at will over the North Slob, which is his shooting preserve.

[In the circumstances it is clear, as the authors rightly state, that the Blue Goose cannot be claimed as a new British bird, though it seems quite as likely that these three examples were wild ones as that they owe their origin to the unfortunate Whipsnade escapes. The Snow-Goose (*Anser h. hyperboreus*), which breeds in the same area of Arctic Canada as the Blue Goose (though its range is much more extensive than the latter's) and is very closely allied to it, if indeed they are not to be regarded as dimorphic phases of one species, has occurred repeatedly in this country in an undoubtedly wild state. There is therefore no reason why the Blue Goose should not do so.

The present case, in which the escape of unmarked birds from captivity has actually ruled out a possible most interesting addition to the British List, serves to emphasize with especial force the need for a more responsible attitude on the part of keepers of waterfowl in the matter of escapes, and for some such organization as is referred to on page 60 of this number.—B.W.T.]

NOTES.

COURTSHIP DISPLAY OF STARLING.

On April 10th, 1946, at Englefield Green, Surrey, I watched a Starling (*Sturnus v. vulgaris*) singing on the ground, everywhere following another which, completely ignoring him, was busily engaged in feeding. Each time the feeding bird stopped, the singer stood close beside it singing; every so often, however, he himself paused and fed, thereafter running across to the other bird and beginning to sing again. After a while he flew into a nearby lime tree and bickered for a moment with another Starling, then flew down to the ground again and repeated the performance.

While singing he took up a posture with head pointing rigidly forward and his feathers slightly puffed out. The song was typical, including imitations of the Lapwing's call and occasionally a loud "chack." There were no other birds nearby although some more Starlings were feeding in a far corner of the field.

The display is in some ways the reverse of that described in *The Handbook*, wherein it is the female which solicits coition.

D. J. May.

GREENFINCHES ROBBING NEST MATERIAL.

With further reference to the notes on nest-adaptation in the Greenfinch (*Chloris ch. chloris*) by Messrs. P. A. Adolph (*antea*, Vol. xxxvii, p. 134) and I. J. Ferguson Lees (*antea*, Vol. xxxix, p. 276) the following incident took place in May, 1940, in the garden of my house in S.W. Lancashire, where I was then living.

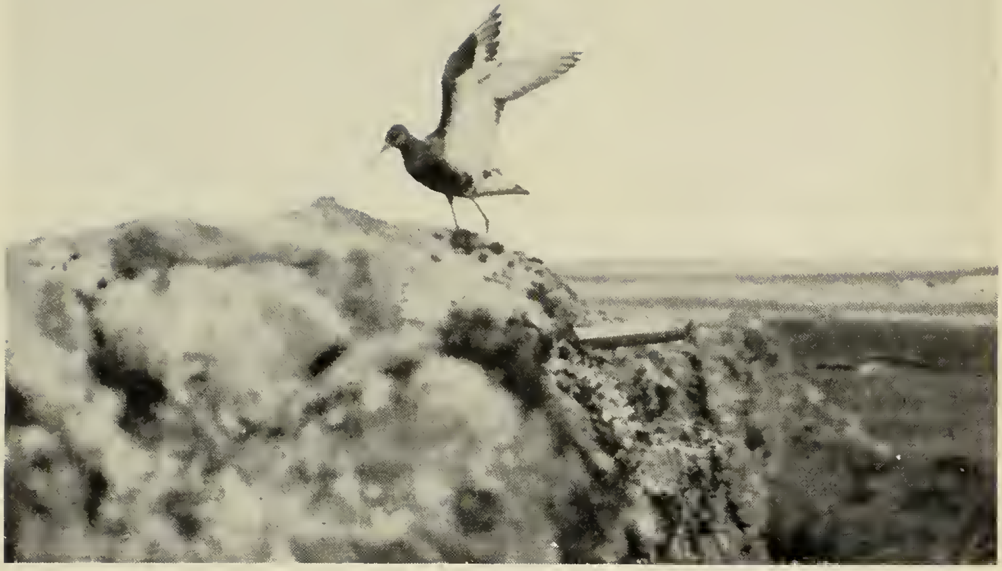
About 8-12 pairs of Greenfinches were nesting in some tall hollies, which they did each year; one pair, however, left the hollies this time, for a laurel where a Song-Thrush (*Turdus e. ericetorum*) had just completed its nest. The Greenfinches pulled out the bottom bents from the Song-Thrush's nest and from them constructed their own. The nests were not separate at all, but joined by many strands. Both birds brooded their eggs within a few inches of each other without any sign of discord. The only material collected by the Greenfinches was a few fine roots with which the nest was lined. Both birds hatched their young, but misfortune overtook the nestlings, a cat taking them all.

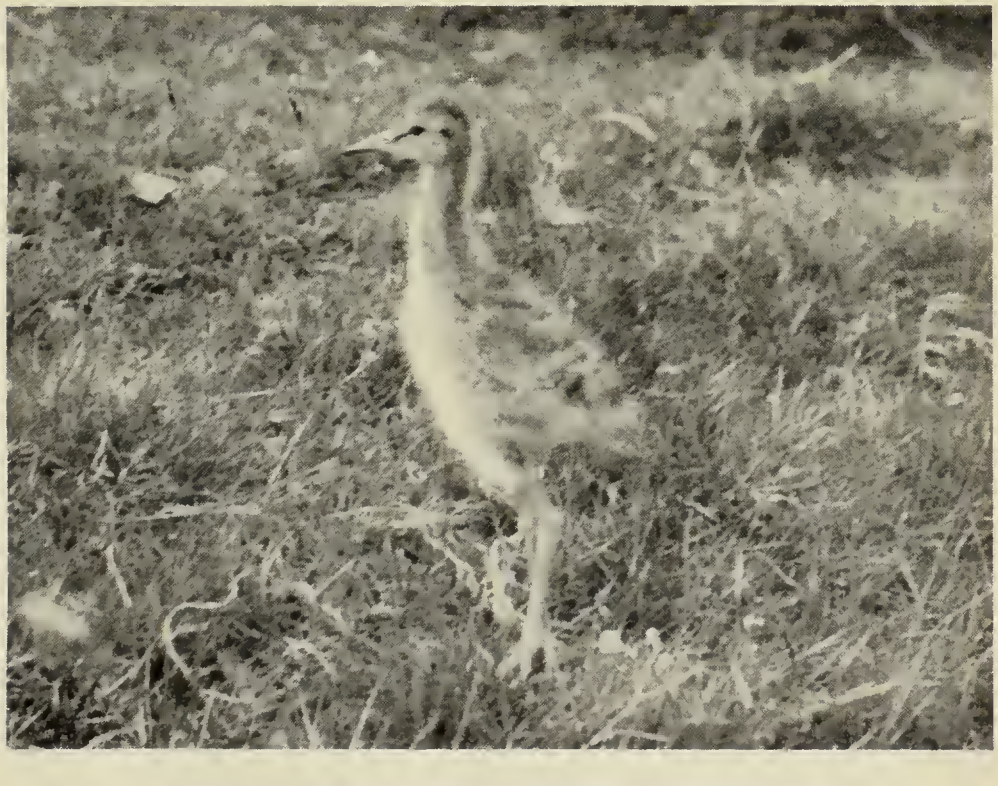
These notes were recorded in my diary at the time.

James Taylor.

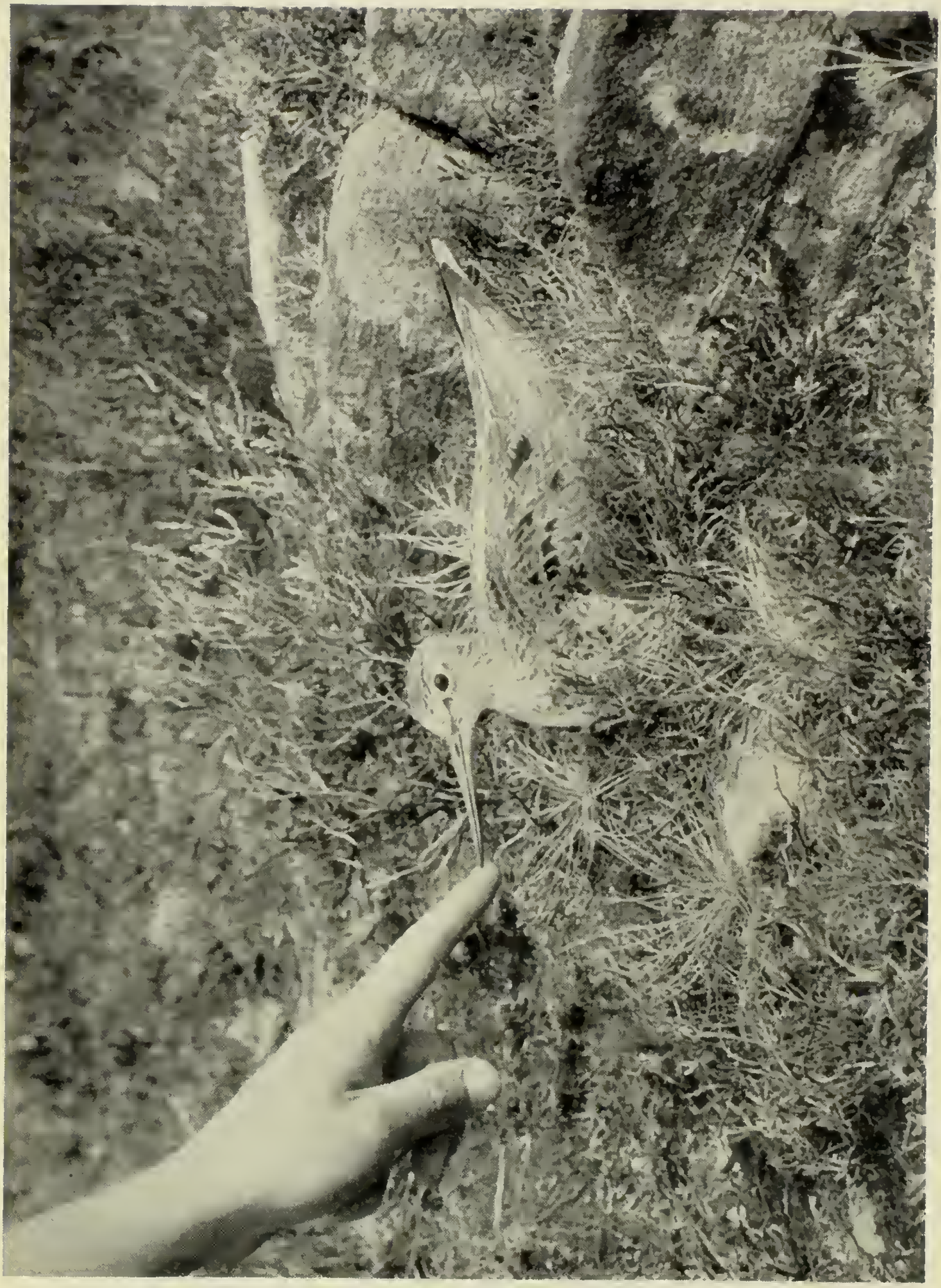
SERIN IN PEMBROKESHIRE.

On April 2nd, 1946, on Skomer Island, Pembrokeshire, my attention was attracted by the twittering of a small bird flying towards me from the sea to the south. It passed more or less directly over me, and from the call, the small size, and the conspicuous yellow rump as it flew away, I had no difficulty in identifying it as a Serin (*Serinus canarius serinus*), a species with which I am familiar on the Continent. It is worth noting that two were seen together on





BLACK-TAILED GODWIT BREEDING IN CAITHNESS.
FIG. 1.—THE MALE BIRD ALIGHTING.
FIG. 2.—ONE OF THE YOUNG.
(*Photographed by* Alan D. Pilkington).



A fearless Greenshank.

(*Photographed by* G. K. Yeates).

the mainland at the nearest point to Skomer in October, 1933 (*antea*, Vol. xxvii, p. 201). E. J. M. BUXTON.

DISPLAY FLIGHT OF LINNET.

As *The Handbook* gives no display flight for the Linnet (*Carduelis c. cannabina*) the following may be of interest. On April 11th, 1946, I was watching six Linnets of mixed sexes in a low bush, when from the top of a tree close by, a male flew out and with widely spread tail, vibrating wings and most intense twittering, descended with a very erratic and wavering flight and alighted among the others. All then flew off. Again on June 29th, 1946, a male was seen to fly *upward* to the top of a tall tree with the same action as above, although the flight was more direct. It was then joined by a female. After a few seconds both flew off. L. RENDELL.

[We have occasionally received records of apparent display-flights performed by common species in which such flights have not previously been reported and in which it is difficult to believe that they are at all regular. It appears possible that individuals of species having no regular or formal display-flight may occasionally perform flights in which a peculiar or exaggerated wing-action is induced by nervous excitement under a sexual stimulus, although such action is not part of the habitual behaviour of the species.—EDS.]

AGGRESSIVE DISPLAY OF WOOD-LARK.

IN March, 1946, I was watching Wood-Larks (*Lullula a. arborea*) on several occasions on a large triangle of rough pasture in Windsor Great Park, Berks. Arriving on the 20th (a mild day but with a strong wind) I began to quarter the stretch of land to try to find the one pair which I knew to be present ; but before long I heard the liquid call-notes coming from another direction, so immediately went to look for the birds. I walked eighty yards before three flew up from almost under my feet, all apparently calling, half-singing. They soon landed just by the edge of a rough gravel road running across the triangle, where I watched the following display.

One bird landed on one side of the road, and the other two on the grass verge of the other side. The two latter birds ran round, continually nodding their heads towards each other, both (probably) calling with short bars of song. Several times they ran at each other : lifting their wings high above their heads two or three times and lowering and spreading their tails, they had a very short fight. On one occasion one bird attacked the other thus from behind ; both went on to the road, where I could see more clearly that their wings were fluffed out and that they were nodding and running about with a peculiar gait, quite frequently pecking at the ground.

Meanwhile, as far as I could tell, the bird on the other side had been calling with similar musical notes, although it was difficult to place where the sound came from ; and a fourth bird had flown round calling similarly. Something then disturbed the birds, for the two combatants flew up, one of them joining the bird on the other side of the road and flying off with her ; the other I lost sight of. I followed the pair for a short way, then wandered all over the triangle again and came across another pair—probably the other two birds. These flew up calling with the usual musical note, the male soaring round and singing a little before they were lost to sight.

The display was obviously aggressive, the two combatants being presumably the males of each pair. The females, apart from being near the males, calling, took no part in it. D. J. MAY.

"INJURY-FEIGNING" OF YELLOW WAGTAIL.

ON June 18th, 1946, while I was ringing a brood of Yellow Wagtails (*Motacilla flava flavissima*) at Kingsey, Buckinghamshire, the hen came within a few yards of me, spread her tail, drooped her wings and shuffled along the ground in a manner similar to the so-called "injury-feigning" recorded for many species. The cock was near, but did not go through this performance. Both adult birds constantly uttered a harsh, grating call quite unlike any I have ever heard before from this species, and clearly unlike any described in *The Handbook*. E. J. M. BUXTON.

DISPLAY OF COAL-TIT AND GREAT TIT.

ON April 8th, 1946, I watched a Coal-Tit (*Parus ater britannicus*) in a birch tree calling with a shrill tremulous note, at the same time vibrating its wings and spread tail very rapidly for some minutes. It was joined by another bird, which it approached closely and possibly attempted to mount. On this the second bird flew off, followed by the displaying one, which was still calling. After the two had landed apart from each other in a bush, it continued to display until the wing-vibration gradually slowed down and the note resolved itself into a form of Coal-Tit song (probably that described in *The Handbook* as "chirrivee"). After a short silence in another tree it sang "pee-cher pee-cher"; then, as two more birds flew into the tree, it recommenced calling and displaying. There followed a chase and a short fight, but I could not tell if the displayer took part, although the tremulous note ceased.

On April 12th, in the same locality, I saw a similar display for a few moments ; while on the 15th I watched a substantially similar display by a Great Tit (*Parus major newtoni*), even to the call—which was, however, a little softer than the Coal-Tit's with occasional pauses. At first there were two other birds in the tree ; later one flew off, but on the displayer's flying away it was joined by both the others again. Following them, I found only two birds, one of which was singing.

There were suggestions, in each display, of courtship and aggression ; but if pair formation had already taken place, the presence of three birds in both cases suggests that the display was aggressive in nature. On the other hand, the presence of two birds displaying sexually may have attracted a third, possibly unmated, bird. D. J. MAY.

COURTSHIP FEEDING OF COAL-TIT.

As courtship feeding in this species is only referred to in the Supplementary Additions and Corrections to *The Handbook*, the following incident may be of interest.

On April 14th, 1946, I watched a pair of Coal-Tits (*Parus ater britannicus*) in a birch tree on Stanmore Common, Middlesex. One bird was picking minute objects from the bark of the main branches, with which it would fly to its mate perched a few feet away and feed it, the latter reacting with soft chittering notes and slightly shivered wings.

This was repeated probably a half-dozen times, though the latter bird also picked its own food once or twice during the intervals of its mate's absence. F. C. BROMLEY.

COURTSHIP FEEDING OF MARSH-TIT.

ON April 25th, 1946, I watched courtship feeding of Marsh-Tits (*Parus palustris dresseri*). One bird, presumably a female, was calling with typical notes in a pond-side alder. Another flew right up to her with a larva of some species in its beak and as she stretched forward her neck, fed her with it. He then flew off ; she continued calling, and a little later he returned and fed her again. Afterwards I lost sight of them. D. J. MAY.

COURTSHIP FEEDING OF WILLOW-TIT.

APROPOS of the note on the courtship feeding of the Willow-Tit (*Parus atricapillus kleinschmidti*) (*antea*, Vol. xxxix, p. 245) I observed a somewhat similar performance on May 3rd, 1939, near Westcote, Glos. A thin, plaintive note (the "eez-eez-eez" of *The Handbook*) drew my attention to two of these birds collecting hazel buds in a coppice. One, presumably a cock, flew down to the other, presumably a hen, and offered her a beakful of hazel buds. She received him with rapidly quivering wings and, uttering the plaintive note, dropped the buds she was carrying, took his, and then dropped those as well. They then separated, both set about collecting more buds, and later went through the same performance again. It was still going on ten minutes later, when I had to leave. J. K. ADAMS.

RENEWED SINGING OF WILLOW-WARBLER.

I HAVE several records from Surrey in the closing days of July and even as late as August 15th, of a marked revival of song from the Willow-Warbler (*Phylloscopus t. trochilus*). The *Handbook* song chart reveals irregular performance from this species throughout the latter half of July and first weeks of August, but in my experience over a number of years, and also that of several other observers, song from this species deteriorates rapidly after the first week of July. The revival of song (usually during the last week of July) consists mainly of shorter phrases than the normal, which are not often repeated and are not distinctly audible at more than 30 yards.

F. M. FIRTH.

COLOUR OF IRIS IN WHITETHROAT.

In May 1939, P. A. D. Hollom and I noticed that the colour of the iris in common Whitethroats (*Sylvia c. communis*) trapped for ringing on Skokholm varied. On correlating this variation with the known sexual distinction in the colour of the lesser wing-coverts we found that in the individuals examined the colour of the iris seemed to be a reliable means of determining sex. In the males, where the lesser wing-coverts are tipped with grey, the iris is a clear ochreous brown ; whereas in the females, where the lesser wing-coverts lack the grey tips, the iris is a uniform dusky brown. The colour of the male's iris is well shown in the plate in H. Eliot Howard's *British Warblers*, but I have not seen an accurate plate of the eye of the female. All the birds examined in 1939 were of course adult. In 1946 I examined a large number of Whitethroats trapped on Skomer I., and found that in adult birds the previous results were confirmed. In birds in their first winter plumage, however, the distinction was not so clear, and there were intermediate shades between those found in the adult birds. The sex of these young birds cannot be determined by the colour of the lesser wing-coverts, but it seems probable that those birds showing an iris lighter than in the adult female are males.

It may be added that at close range the light colour of the iris of the adult male is easily seen, and this may help in the sexing of birds at the nest, e.g. when being watched from a hide.

E. J. M. Buxton.

COURTSHIP FEEDING OF MISTLE-THRUSH.

With reference to recent notes on this subject (*antea*, Vol. xxxix, pp. 88-89, 179), I am able to report another case of courtship feeding by the Mistle-Thrush (*Turdus v. viscivorus*), which I saw in Southampton in 1946. The nest was apparently completed by March 26th, and incubation had begun by April 2nd. On March 29th, I saw the male feed the female about 20 feet up in a tree some 150 yards from the nest. Coition took place at once, immediately followed by two further acts. R. E. Williams.

In 1935 a pair of Mistle-Thrushes (*Turdus v. viscivorus*) nested in a weeping-ash tree in my garden and hatched out four nestlings on April 7th. On several occasions prior to this date the cock was seen to feed the hen on the nest. Incubation was the work entirely of the hen. R. H. Brown.

BLACKBIRD BUILDING SEVEN NESTS AND LAYING CLUTCHES OF TWO EGGS.

On March 21st, 1945, a pair of Blackbirds (*Turdus m. merula*) started constructing a nest in a mock-orange bush in a garden at Sale, Cheshire. The building was, as usual, performed by the hen bird; the cock occasionally brought leaves, but she never accepted these.

The nest was completed by the evening of March 27th. After this both sexes were rarely seen for some days. The hen laid one egg on April 9th and one on the 10th and then started incubating. She only incubated the two eggs for 4 days, after which she deserted the nest. This was on April 15th.

On April 16th she began building another nest in a small hawthorn bush only 11 yards away from the previous attempt. It was completed by the evening of April 19th. Laying began the following morning and was completed on the 21st, the hen again laying two eggs. Incubation began as soon as the second egg had been laid. Unfortunately, this nest could not have been well built, for, after incubating for two days, the hen again deserted owing to the nest having collapsed.

I was surprised to see her on April 24th constructing a third nest only about 11 yards from the previous one. This time it was built on top of a nest-box fastened to a trunk of a poplar tree. This nest was completed on April 26th at noon. On the 27th laying began. The hen proceeded to lay four eggs, laying one per day as usual. Incubation commenced on the completion of the clutch on April 30th, but after it had lasted just over 12 days a violent thunderstorm during the night of May 12th completely destroyed the nest.

On May 14th I found the hen busy on another nest, this time in a hawthorn bush about 14 yards away from her previous one. It was completed on May 18th by noon. Laying began on the 19th. The hen then laid one egg per day until she had laid five, when she commenced incubating on May 23rd. After sitting for five days, she deserted for an unknown reason.

Her fifth nest was started on May 29th. This one was about 30 yards away in another garden. Unfortunately no breeding data are available except that the hen probably deserted it on June 17th in the morning, as she was observed about in our garden practically all the afternoon and evening.

On June 18th the hen commenced upon her sixth nest, which was situated in the original garden in a holly bush. This time the building was performed in two days. Laying began on June 22nd at 3.35 p.m. The hen laid four eggs, one per day as usual. Incubation commenced on the completion of the clutch on June 25th and only lasted four days, after which the nest was again deserted for an unknown reason.

The seventh and final nest was, unfortunately, not discovered until it contained young birds. It was probably commenced on June 30th or July 1st, and it was not found until July 31st. It was situated in a poplar tree about 15 feet up. The young left the nest on August 1st.

The garden in which all but one of the nests were built measures approximately 26 yds. × 16 yds.

These observations seem worthy of record both on account of the persistence of the hen bird and of the fact that two of her clutches consisted of two eggs only (*cf.* Col. Ryves's note, *antea*, Vol. xxxix, p. 375). [See also p. 64.—EDS.]

SUMMARY.

	Date Commenced	*Building*	*No. Eggs Laid*	*Incubation*	*Date of Desertion*
1st Nest	March 21st	7 days	2	5 days	April 15th
2nd Nest	April 16th	4 days	2	2 days	April 23rd
3rd Nest	April 24th	3 days	4	13 days	May 12th
4th Nest	May 14th	5 days	5	5 days	May 28th
5th Nest	May 29th	Unknown	Unknown	Unknown	June 17th
6th Nest	June 18th	2 days	4	4 days	June 28th
7th Nest	July 1st	Unknown	Unknown	Unknown	Y'ng fledged August 1st

JOHN SOUTHERN.

DISPLAY OF HOUSE-MARTIN.

AS notes on "Display and Posturing" are lacking in *The Handbook of British Birds* under this species, the following observation may be of interest.

For many years past at least one pair of House-Martins (*Delichon u. urbica*) have nested beneath the eaves of my Southampton house, and I have had ample opportunity for watching them.

In May, 1938, about 9 a.m. on a fine morning I observed, in the close vicinity of their nest, a pair of Martins behaving in an unusual manner. They were about on a level with the eaves of the house, facing each other with a peculiar fluttering flight and gradually losing height, their beaks almost touching and both uttering their twittering song. Descending vertically, both birds kept up the performance until very near the ground, and then separated. D. W. BISHOP.

SNOWY OWLS IN COUNTIES GALWAY AND MAYO.

MESSRS. J. J. O'Connor and R. J. Roddy have kindly sent me details of Snowy Owls (*Nyctea scandiaca*) captured by the latter on Illaunimul, Co. Galway, on which islet Slyne Head Lighthouse stands.

June 16th, 1946. An adult female. The bird was accompanied by another which was evidently immature and which had been seen about since May 16th.

July 1st, 1946. An adult female.

July 12th, 1946. An immature female, considered not to be the bird seen up to June 16th.

Those of June 16th and July 12th were preserved by Rohu and Sons of Cork, that of July 1st was sent to me in the flesh.

I have recently examined an adult female Snowy Owl in the possession of Mr. Mannion of Castlebar, which was shot near Lough Cullin, Co. Mayo, on December 4th, 1944. ROBERT F. RUTTLEDGE.

LITTLE OWL TAKING GRASS-SNAKE.

On May 21st, 1946, at Long Crendon, Buckinghamshire, I found a young Grass-Snake (*Natrix natrix*) about eight inches long, with the head bitten off, in the entrance to the occupied nest of a Little Owl (*Athene noctua vidalii*). This is not recorded in the section on food in *The Handbook*, though there is one record in A. Hibbert-Ware: *Report of the Little Owl Food Inquiry* 1936-37, p. 42.

E. J. M. Buxton.

FOOD-WASHING OF WADERS.

With reference to the food-washing of waders (*antea*, Vol. xxxix, pp. 184, 249 and 377), the following note on the Black-tailed Godwit (*Limosa l. limosa*) may be of interest. On August 23rd, 1946, twelve of these birds were feeding on mud-flats at Thorney Channel. While watching them through a telescope at fairly close range, I saw one of them extract a small roundish object from the mud and carry it a few feet to a small pool. Here it was washed with a side-ways motion of the bill and then swallowed. Continued observation showed that this performance was repeated at frequent intervals by the bird in question and by most, if not all, of the other eleven. In each case it was a small roundish object that was extracted and washed. Sometimes the washing was done, not in a pool, but in a depression without water where the mud was in a semi-fluid condition. In nearly every case it was possible to see the object in the bird's bill while it was being carried and to see it swallowed after the washing had been completed. D. D. Harber.

With reference to this habit in waders (*antea*, Vol. xxxix, pp. 184, 249 and 377), we can add that it appears to be normal in Curlew (*Numenius a. arquata*). On August 14th, 1946, we were watching from a hide in the middle of a mud bank at low tide for six hours. During this time we were surrounded by not less than 400 Curlew at ranges down to ten yards; observations were with x 8 glasses and x 20 telescope.

We found that the feeding birds probed almost invariably with partly open bill. When food was taken direct from the mud or from water, it was swallowed straight away; but when any kind of vegetable matter was probed and small crustacea, crabs of half-inch diameter and less, shrimps and sandhoppers, taken, the bird generally ran to the water and shook its bill vigorously from side to side for a period of from three to five seconds, by which time the crab could be seen to be freed from vegetable matter, and held in the partly open bill about one third of the way up. The bird presumably then extended its tongue and the crab was swallowed, but this last action was on every occasion too swift for the eye to follow even at the closest range.

The swallowing was often followed by a further immersion of the bill in water up to the same one third of its length, presumably to drink, and invariably without throwing back the head. We did not see any crab larger than could be swallowed whole, taken by any bird. N. HARVEY AND BERNARD F. HARVEY.

SHORTLY after mid-day on August 7th, 1946, my son and I, while waiting at Brancaster for the boat to Scolt Island, were watching a party of Dunlins (*Calidris alpina*), feeding in a creek in the saltings. The birds were advancing towards us more or less in single file along the tide rim and we noticed that while the two leading birds were feeding right at the water's edge the third was working the mud a foot or so higher up and kept running down to the water to wash its captures before eating them.

This behaviour continued till the birds, still keeping station, were feeding only a few feet away from us in a good light, so that every detail could be clearly seen. The two leading birds, feeding from mud just covered by water, made no washing movements and swallowed their prey so quickly that its exact nature could not be seen. The third bird persisted in feeding a foot or so from the water and there was ample time to distinguish its captures as small worms, because, before eating them, it ran every time to the water's edge and washed them with a few quick side to side movements of the bill.

Some other birds of the party, including, once, one of the two leading birds, were seen to capture worms away from the water's edge, and these then took them to the water and washed them in exactly the same way.

These Dunlins evidently preferred their food free from mud and, unless they captured it from a submerged substratum where washing would be automatic during seizure invariably took it to the water to clean it. O. D. HUNT.

ON July 29th, 1946, while watching a flock of a hundred or more Dunlin (*Calidris alpina*) feeding on soft mud on the Exe estuary, just above Topsham, I saw four in a few minutes each carry a worm in its beak to the water a few feet away, dip it in, make two or three quick sideways movements of the beak as if washing the worm, and swallow it.

Another was seen to swallow a worm without taking it to the water, while yet another carried its worm to the water, but before it could wash it a Black-headed Gull (*Larus r. ridibundus*) ran at it with the intention of robbing the wader. The Dunlin ran away, but as the gull persisted in chasing it, it swallowed the worm.

The habit of watching the smaller waders feeding and attempting to rob them is common with the Black-headed Gull, but it meets with little, if any, success. R. G. ADAMS.

WITH reference to the food-washing habit of waders (*antea*, Vol. xxxix, pp. 184, 249 and 377), the following notes on the Greenshank (*Tringa nebularia*) and Curlew-Sandpiper (*Calidris testacea*) may be of interest. On September 9th, 1946, I was watching a Curlew-Sandpiper feeding with a small party of Dunlin on the mud-flats of the Taw Estuary, North Devon.

On each of five occasions I observed the Curlew-Sandpiper catch a worm about an inch long, carry it four or five yards to the water's edge and dip it well into the water before swallowing it. It then returned to the area of its capture. It appeared to swallow the worm while its bill was partly immersed as on none of these occasions did I see the worm taken out of the water.

On September 12th, 1946, whilst watching a Greenshank feeding in the same locality, I observed it capture a worm, run with it to the water's edge and wash it before swallowing it.

ROBERT F. MOORE.

ON August 14th, 1946, we watched a party of twelve Redshanks (*Tringa totanus*) feeding on a mud-bank on the estuary of the Camel below Wadebridge, Cornwall. The birds were busily engaged in picking out of the mud what appeared to be small worms an inch or so in length, and carrying them down the bank to the water, in which they agitated their beaks several times before swallowing their prey. Each bird would then turn back and repeat the operation. All the birds were acting in this way, and undoubtedly they were washing their food before consuming it.

E. K. CHAVE AND S. P. W. CHAVE.

IN my notebook for May 19th, 1946, I have the following note from Beadnell, Northumberland :

"Watched a pair of Ringed Plovers (*Charadrius h. hiaticula*) feeding on sand-worms within a few feet of a tidal stream ; these were withdrawn from the sand by a long steady pull, and on each occasion that either bird caught one it hastened to the water, and quickly swallowed the worm after a thorough rinse." J. S. ASH.

BLACK-TAILED GODWIT BREEDING IN CAITHNESS.

(Plate 9).

AS I understand that the Black-tailed Godwit (*Limosa l. limosa*) has not previously been recorded as nesting in Scotland, it is interesting to be able to report that a pair bred in the summer of 1946 near the north coast of Caithness. The breeding-ground consisted of rough tussocky grass alongside a burn and close to the moor. I watched the birds on a number of occasions with good binoculars often at 20-30 yards distance, but was unable to locate the actual nest, as they were not reported to me till the beginning of July, though they were first seen at the end of May. The birds were very demonstrative and not only flew round me protesting all the time but, the cock especially, frequently alighted on the ground quite close to me; on one occasion while I was lying flat on the ground in some rough grass the cock practically ran over my feet. He was much bolder then the hen, who never alighted nearer than 40-50 yards from me. His plumage was mainly a beautiful cinnamon or chestnut. The female was considerably larger and lighter in colour. I was able to take several snapshots, mainly of the cock, and an enlargement of one of these is reproduced.

When the young were hatched, I was able to watch one of them through binoculars and telescope at 150-200 yards, running about close to the old bird, and on the last occasion at about 40 yards distance. On this occasion I was able to run to it and find it, as the grass was short and it crouched immediately I showed myself. I took several photographs of it walking about and one of these is also reproduced here. I never saw more than one young bird at a time, but four birds were seen together on the wing early in August, so they evidently had two young. The birds were not seen again after this date. ALAN D. PILKINGTON.

A FEARLESS GREENSHANK.

(Plate 10).

THE Greenshank (*Tringa nebularia*) is well-known to be often a tight-sitting species. A bird, found nesting in Sutherland in May, 1946, by Captain T. B. W. Jeans, Mr. H. A. Patrick, Dr. K. J. Carlson and myself, would, however, appear to have been quite exceptionally fearless of human beings.

When I first wished to flush her from the nest, I stretched my hand slowly towards her. As she did not move, I touched her head and bill and stroked her down the back. She continued to sit. I then very gently put my hand under her body and felt the eggs. At this she flushed, yelping loudly and fluttering with spread tail close to my head. She landed within three or four yards and was clearly very anxious to return. When I withdrew to about 8 feet, she came straight back to the eggs.

I was in the company of this bird for nearly three weeks, and as incubation progressed, her fearlessness grew. I am convinced that, had I been so minded, I could with ease have tamed her to incubate the eggs in my hand, as Bengt Berg did with the Dotterel (*Eudromias morinellus*), but not wishing to make a fool of the bird, I resisted that temptation.

The hatch brought a very sudden change of behaviour. Her eggs chipped on June 1st, and on the morning of the 3rd the chicks were out, but not yet all quite dry. At 10 a.m. she was much more noisy and less inclined to return before my exposed presence, though eventually she returned to her familiar disregard. I left her for an hour and returned about 12.30 a.m. By now the chicks were able to run, and she was a different bird. Even if I retired to a distance of 400 yards from the nest, she refused to go back to the chicks. With the young on their legs, the nest seemed no longer to have any pull for her, and my tame Greenshank had reverted to its normal wild character. G. K. YEATES.

[Such behaviour as Mr. Yeates describes is undoubtedly quite unusual, but not unparalleled. A photograph by Mr. John Markham showing Mr. Nethersole-Thompson stroking a sitting Greenshank was published in *The Field*, May 1, 1943, p. 451, and Mr. Thompson tells us that he has touched sitting Greenshanks on at least ten occasions. He also draws our attention to an early record by E. T. Booth of a Greenshank in Ross-shire in 1868 which allowed itself to be stroked while sitting (*Rough Notes on the Birds observed during Twenty-five Years' Shooting and Collecting in the British Islands*, 1881-87).—EDS.]

INLAND BREEDING OF RINGED PLOVER IN LANCASHIRE.

THE inland breeding of the Ringed Plover (*Charadrius h. hiaticula*) in Lancashire was first observed in 1942 on a sandy mud-patch liberally sprinkled with pebbles by a flash at Wigan—a subsidence caused by coal-mining. In that year I first saw two birds on March 29th and a pair, obviously nesting, on two occasions in May ; on May 31st I watched them with three young and on July 7th with a newly-hatched second brood. War-time duties made visits infrequent in subsequent years, but in 1943 on June 15th, I saw a pair with four young. In 1944 on April 23rd there was a pair on the breeding-site and two pairs on May 29th (seen by Mr. G. Brown and myself), but no young were found later and their eggs were presumably taken by youths who infest the locality. There was no evidence of nesting in 1945. In 1946, however, Mr. G. Brown, on June 24th, found, on an expanse of dried mud, a nest decorated with small brownish stones and containing two eggs and a newly-hatched chick ; on July 23rd he saw an anxious pair by another flash some 500 yards distant, but failed to find another nest. THOMAS EDMONDSON.

COLOUR OF LEGS OF BLACK-HEADED GULL.

AT a meeting of the Eastbourne Natural History Society held in the spring of 1946, Canon K. H. MacDermott mentioned to me that he had been watching some gulls on the front, which were apparently adult Black-headed Gulls (*Larus r. ridibundus*) but with legs and beaks appearing black. I found that Mr. H. K. Bagnall-Oakeley had seen some similar birds and had noticed that the tails were not forked. I have since unearthed a note, which says that on May 10th, 1937, I saw three such gulls on the Crumbles. At the time I thought they must have got stained by some chemical, but the occurrence of these similar birds after so long an interval suggests that possibly the Black-headed Gull like the Dusky Redshank may sometimes develop dark legs in the spring. E. C. ARNOLD.

A NEW LIST OF THE BIRDS OF LINCOLNSHIRE.—Messrs L. Ottaway and A. E. Smith inform us that they are preparing a new list of the Birds of Lincolnshire, for which there in considerable need. They would be very grateful if any readers having information about Lincolnshire birds would communicate with Mr. A. E. Smith, 43, South Street, Alford, Lincs.

A REGISTER OF WATERFOWL.—The *Avicultural Magazine* for September-October is devoted to wildfowl and contains proposals by Lieut.-Commander Peter Scott for a register of wildfowl kept in captivity and semi-captivity and for marking birds kept full-winged. The advantages to aviculture of such a scheme, which are fully explained, do not immediately concern us here, but its ornithological merits are obvious. Any increase in our knowledge of the seasons and conditions under which a number of species visit this country is at present precluded by the practice of keeping fully-winged birds which cannot be prevented from straying, and, as more fully discussed on another page of this issue, this same practice has recently ruled out a possible interesting addition to the British List. We do not know whether some waterfowl keepers may prove resistant to the idea of being asked to supply information to such a register, and some of the smaller collections will certainly be difficult to trace, but we hope the scheme will gain the widest possible support in the interests of both aviculture and ornithology. We have long felt the need of some such system and we hope that those of our readers who keep waterfowl will do all in their power to promote its success.

IMMIGRATION OF WAXWINGS.—Many readers will by now be aware that a considerable immigration of Waxwings (*Bombycilla g. garrulus*) has taken place during the present winter, particularly in Scotland and the North. We shall be glad to receive particulars from any observers who have not yet communicated with us, with a view to drawing up a comprehensive report.

OSPREY ON THE TWEED.—Mrs. K. S. Hall sends us details of an adult Osprey (*Pandion h. haliætus*) seen about two miles above Coldstream on the Tweed, which here forms the boundary between Berwickshire and Northumberland, on May 30th, 1946.

UNUSUAL NUMBERS OF CURLEW-SANDPIPERS AND LITTLE STINTS INLAND.—We have received reports of quite exceptional numbers of Curlew-Sandpipers (*Calidris testacea*) at inland sewage-farms and other localities during the past autumn, and Little Stints (*Calidris minutilla*) also appear to have been more general than usual inland. We should welcome particulars of inland occurrences of these species during the autumn of 1946 from any observers who have not already informed us.

REVIEWS.

South-Eastern Bird Report, being an Account of Bird-Life in Kent, Surrey and Sussex during 1944. Edited by Ralph Whitlock. Ditto (including Hampshire) for 1945.

THE 1944 South-Eastern Report, delayed by printing difficulties, was not available when our notices of the 1944 local reports were prepared.

There are Grey Wagtail breeding records for all three counties. In the Sussex section we note that these birds did not breed in the previously recorded locality just south of the Kent-Sussex border, though it appears from the Kent section that they did so in the same district. We are glad to note that a pair or two of Dartford Warblers were observed " in a haunt which held several pairs in 1943 " and a pair may also have bred in an East Sussex locality where one was definitely seen in April. It is also gratifying to ornithologists to learn that the Peregrine "does not seem to have suffered any change in status during the war." An immature White-tailed Eagle was seen over Hove on March 12th and there are records of a Firecrest in October and Hoopoes in March and May. A curious record is of a Hobby flushed off an old crow's nest on *September* 3rd.

Two pairs of Tufted Duck bred at Enton Ponds. In addition to a Temminck's Stint already recorded there are records of Sanderling and Grey Plover, and other waders less uncommon inland, observed on Guildford Sewage Farm. We wonder whether the attribution of Dunlin observed on the farm to the Southern race, *C. alpina schinzii*, is inadvertent or intentional and, if the latter, how they were identified. Mr. Jeffery Harrison has some general notes on migration at the Guildford Sewage Farm.

The Kent report is the fullest and contains much information on local distribution and fluctuations. No Bearded Tits were seen in the tract of reed and sedge beds in East Kent where they were present in 1941-2, the area having been considerably curtailed by land reclamation. Full-winged Wigeon and Pintail were present on the East Kent marshes during the breeding-season, but Garganey are stated to have decreased markedly there owing to destruction of their feeding grounds by drainage. Marsh-Harriers were again present on these marshlands in summer. Small crakes, of which one at least was Baillon's, were again seen. A record of the breeding of Kentish Plovers in 1943 is the same as was published with somewhat fuller particulars in the *Hastings and East Sussex Naturalist* for 1944, though no reference to this earlier account is given.

In addition to numerous observations on waders and waterfowl on the coast there are also reports of Golden Oriole, Firecrest, Hoopoe and Whooper Swan, of a Dipper in December between Wickambreaux and Littlebourne, and a Grey Plover inland at Riverhead on August 27th. An observation on the display of Red-breasted Mergansers may also be mentioned. A record of an alleged Ivory Gull at second-hand and without a word of evidence in support is properly square-bracketed, but might well have been omitted entirely.

A note on Nightingales quoted from *British Birds* has got misplaced under Lesser Whitethroat and the second paragraph under Kingfisher should have been under Cuckoo above. A number of species on pages 32-3 are out of place.

The 1945 Report contains much information of local value, but, as it happens, a good deal less calling for special comment. No Dartford Warblers were seen in the East Sussex locality where breeding probably occurred in 1944. In the Sussex section we notice several discrepancies with the notes in the *Hastings and East Sussex Naturalist* noticed on page 30. Thus, there is stated to have been a new colony of about 100 Little Terns by Rye Harbour, but the Hastings and East Sussex Report says that although about 100 *pairs* were present on May 15th, most of these passed on. An Arctic Tern record for Rye appears as May 17th in one report and May 18th in the other.

In Surrey no Dartford Warblers could be found on a heath in the west of the county where formerly several pairs were resident. A drake Garganey was present on Guildford Sewage Farm from April on, and as a female was also seen there during April there seems a possibility of breeding. Tufted Duck again nested at Enton Pond (the "large pond on the east side of the railway line between Milford and Witney Stations" mentioned in the same paragraph is surely the same place). A pair of the Arctic race of Ringed Plover were obtained on an East Kent marsh on May 13th, and a record of a pair of Black-winged Stilts in East Kent on May 12th is additional to those published by us. Flocks of up to 100 and 150 Pintail in the East Kent marshes in winter are noteworthy. Marsh-Harriers were present in these marshes on passage and in winter, but apparently not in summer in 1945. A Great Skua settled on the shore at Dungeness on October 9th. As Mealy Redpolls appear to have been appreciably more widespread than usual in 1945-6 it is deserving of mention that "some large birds of this type" were present in the Sevenoaks district in October.

The Hampshire section is a reprint of the 1944 report noticed previously.

Ornithological Report for Northumberland and Durham for 1945. Compiled by G. W. Temperley. (Reprinted from *The Naturalist*, July-September, 1946).

This and the following excellent North Country reports are models of their kind and contain much valuable material.

Particulars are given of the first definitely authenticated breeding of Siskins in Northumberland, "near Wooley Sanatorium, south of Dipton Wood" in 1942. The breeding of Crossbills in Dipton Wood in 1945 is also recorded. A pair of Pintail was observed on a Northumbrian loch up till April 30th and the duck was seen with a brood of at least four at the end of May. Garganey probably bred or attempted to breed in N.E. Durham and Goosander bred again in Upper Coquetdale (cf. *antea*, Vol. xxxvii, p. 58). The surprising event of the finding of a Manx Shearwater's egg on Marsden Rock on the Durham coast in 1939 has already been recorded in *British Birds.* On the Farnes about 150 pairs of Sandwich Terns nested on the Brownsman, where we are glad to note that supervision by watchers has been resumed. Quail nested at West Fleetham, Northumberland. An extension of the range of the Little Owl is recorded and some data on Willow-Tit distribution are given. In response to a request for information, a number of observations on the local status of the Lapwing have been sent in. A definite decrease is indicated in some areas.

Noteworthy records are those of Arctic Redpolls (*Carduelis hornemanni*). Surf Scoter and Kentish Plover, which have already been accepted by *British Birds.* A less satisfactory one of a Broad-billed Sandpiper on the Northumberland coast is rightly given in square brackets with the evidence. It seems desirable to state that we ourselves investigated this record very carefully and were not satisfied with it. A point not mentioned is that a friend of the observer's, who accompanied him on the occasion in question, took a photograph of the bird, and although this is not good enough to settle the matter conclusively, it is definitely not favourable to the identification.

Several Mealy Redpolls at Consett, Durham, in December deserve mention in view of the fact noted above that these birds were more widespread than usual in the winter of 1945-6, and have not been recorded in the present area for many years, though evidently commoner in John Hancock's day. Other records which may be mentioned are those of a Scandinavian or Siberian Chiffchaff at Norham on December 1st, Fieldfares as early as August 24th at Consett, as many as 82 Whooper Swans at Capheaton Loch, Northumberland, at the end of December and a notable northward movement of Pomatorhine Skuas off the coast at Whitburn on November 9th, when 65 birds were counted either singly or in small flocks up to 14 in number.

An adult Iceland Gull is recorded on the Durham coast in January and an immature bird in September. The former is stated to have been accompanied by two Glaucous Gulls, "with which it could be compared." But it is necessary to emphasize that the identification of Iceland Gulls is a considerably more "critical" matter than used to be thought, not only on account of the wide range of size of Glaucous Gulls and the occasional occurrence of small individuals hardly bigger than a typical Herring-Gull, but because the wing-tips, although they do not project so far beyond the tail as in the Iceland Gull, do so quite noticeably in a good many individuals. The fact that one of the above birds was actually in company with Glaucous Gulls enhances the possibility that it was really a small example of this species.

Yorkshire Naturalists' Union : Committee for Ornithology Report for 1945. Edited by R. Chislett. (Reprinted from *The Naturalist*, April-June, 1946).

In addition to a Golden Oriole reported in *British Birds*, a female was seen on June 6th and a male on June 16th in approximately the same locality near Hutton-le-Hole. A small new breeding colony of Reed-Warblers was found in the West Riding in July, and Montagu's Harriers bred in at least two localities. There are records of Mealy Redpolls in several localities and in some numbers. A few Waxwings were seen at several places in January and November and 40-50 at Scarborough on December 20th. We note that the Little Owl is now common over most of the county except the upper reaches of the western dales and the Hambledon and Cleveland area, where, however, an extension of range has occurred. A remarkable inland record of Fulmars is one of about a dozen seen on December 3rd near Bingley, nearly 70 miles from the east coast and some 40 miles from the mouth of the Ribble on the west. Some extraordinarily early records of Cuckoos have been received. Birds were *seen* in two localities on February 15th, and on March 15th one came down exhausted at Scarborough, but, after resting, flew away. At Stanton Dale one was seen regularly from March 27th until it began to call on April 21st. These records appear to be reliable, but we share the Editor's wish "that people would get another ornithologist to confirm such records when they have the bird under observation for weeks."

Amongst many records of waders and water birds on the coast and inland we may mention three Grey Plovers at Swillington on December 8th. Other records which may be mentioned are of Wigeon diving and of Kestrel attacking a Great Spotted Woodpecker. Several reports of Iceland Gulls seem to need some qualification for the reasons given in the preceding notice.

Flintshire Report for Ornithology, 1944 *and* 1945. Edited by J. Humphreys and C. M. Swaine. (Reprinted from *Proc. Dyserth and District Field Club*, 1945.).

We are glad to welcome a new county report, which fills up another small gap in recording for England and Wales. The records are mainly of local importance, but a female Golden Oriole seen at Meliden in July and August, 1944, a pair of Siskins seen regularly in a Prestatyn garden in April, 1945, local records of Willow-Tits, and a Pomatorhine Skua seen on a salt-marsh at Point of Ayr on August 28th, 1945, may be mentioned.

Field List of British Birds, including ring sizes. London Natural History Society : price 6d. each (to members 4d.).

We have received a sample of these field cards, which list over 300 species and sub-species of British birds, omitting rarities which have occurred less than 30 times since 1900. Each card has columns for entering up the birds seen on five different trips, with a space for date, weather conditions and route of each. These are not the first cards of more or less this type that have been issued, but with the increasingly widespread enthusiasm for bird observation they might well attain a wider popularity than others. They should certainly prove a considerable convenience to many who like to make such lists, and a particularly useful feature for ringers is the inclusion of ring-sizes and other ringing points. The cards are obtainable from the Honorary Secretary of the London Natural History Society, British Museum (Nat. Hist.), London, S.W.7.

The "Greenrigg" Bird Ringing Register.

Mr. Stuart Boardman, who has for many years been a keen bird ringer, has sent us a copy of a book he has devised for keeping private records of birds ringed. It is obtainable from the Greenrigg Works, 109 Monkhams Avenue, Woodford Green, Essex, for 11s. 6d. post free. It contains space to enter the particulars of ringing of about 4,000 birds, including columns for coloured rings on each leg, and at the end there are columns for summarizing the numbers ringed in eight seasons. It will undoubtedly be very useful to those who ring large numbers of nestlings, most of which, if heard of at all, are only recovered once. The column headed "recoveries" only allows space for one record or, even if much smaller writing is used than is necessary in the other columns, only for very few. We should have thought this was quite inadequate for birds ringed in traps or colour-ringed, many of which, if recovered or observed again, are recorded on numerous occasions. And we should suppose that trappers and colour-ringers need a book in which to keep records much more than ringers of nestlings. W.B.A.

LETTER.

BLACKBIRDS' CLUTCHES OF TWO EGGS.

To the Editors of British Birds.

Sirs,—With reference to Colonel Ryves's note (*antea*, Vol. xxxix, p. 375) on a clutch of two eggs only, of the Blackbird (*Turdus m. merula*), I wish to point out that this number of eggs for a full clutch is not extremely abnormal. I cannot but think that it was an oversight on the part of (the late) Rev. F. C. R. Jourdain that no mention was made in *The Handbook of British Birds* of the fact that twos are sometimes full clutches. I would call your attention to *British Birds*, Vol. xxvii, p. 360, where you print a note of two complete sets of two eggs being found by me in Denbighshire in 1934. Further in Volume xxx of *British Birds*, pp. 45-46, Mr. P. A. Clancey records various complete sets of two and even of one only. W. M. Congreve.

[We agree that the omission of any reference to clutches of two by Mr. Jourdain in *The Handbook* was probably an oversight, but the fact remains that such clutches, if not "extremely abnormal," are unusual in most districts and were so described in the note to which Major Congreve refers, where other instances are mentioned. Two other cases of full clutches of two eggs have been reported to us as a result of Col. Ryves's note, namely one in Berkshire in 1943 in which the nest was under regular observation from its building to the fledging of the young (B. M. A. Chappell) and one at Little Clacton, Essex, on April 1st, 1946 (Miss R. M. Roper). Attention may also be drawn to Mr. John Southern's note on p. 52.—Eds.]

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TERRITORY IN THE RINGED PLOVER

BY

A. G. MASON, B.Sc.

In July, 1944, I had an opportunity of studying the territorial behaviour of Ringed Plover (*Charadrius h. hiaticula*), at Malahide, Co. Dublin, where large numbers nest in and around the tern colony. The conditions for observation were exceptionally favourable. At one place a narrow basin of salt-marsh about 400 yards long by about 100 yards wide is separated from Malahide inlet by a tapering spit of low sand-dunes. Ringed Plovers nested all along both sides of this spit and even in the middle as far as 30 yards from either beach. Two nests in particular were under observation. One was on a low islet of sand in the middle of the salt-marsh and the other was some 50 or 60 yards away on the beach between the salt-marsh and the dunes.

The male and female both brooded the eggs and changed over at fairly frequent intervals. In the intervals between brooding the birds spent the time either sitting near the nest or feeding. Most of the feeding was done on "common" stretches of salt-marsh which did not belong to any territory. There were always several birds in view, feeding on this common ground, and they constantly wandered on to territory, when they were immediately chased away by the owners.

When chasing away an intruder, the birds made an aggressive or threat display. The breast feathers were puffed out, making the black gorget more prominent. The back feathers were erected, giving the bird a humped appearance from the side view. From the front the effect was that of a high ridge. At the same time the tips of the wings were parted and slightly elevated and the tail was fanned out and slightly depressed.

This display was formerly confused with courtship, but Laven (*Beitr. Fortpfl.-biol. Vögel*, 1938, pp. 49-54, 90-95), quoted in *The Handbook*, Vol. v, p. 281, considered it to be primarily a threat display. I saw it on numerous occasions and there is no doubt that this is so. Both sexes use it and both sexes drive intruders out of the territory.*

Only one actual fight was seen. It occurred when an intruder, near the border between two territories, was threatened by a bird from each territory. The intruder flew away and the other two birds ran at each other, both making the aggressive display. When they met they made little fluttering jumps about a foot into the air. It was all over in a moment and they separated and returned to their respective territories.

By noting the positions of the intruders when they were threatened a fairly accurate idea of the size of the two territories was obtained. When paced out on the ground one, belonging to the nest on the islet, proved to be approximately 30 yards by 25 yards and the other 35 yards by 30 yards.

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* Since this paper was written, the aggressive display has been further described and figured by Edwards, Hosking and Smith (*antea*. pp, 12-19). —Eds.

The nest of the islet pair was only six to eight feet from the boundary between their territory and the territory of a neighbouring pair. There was no nest on the neighbouring territory, but as most of it had been flooded by spring tides it is possible that the eggs had been washed away. Despite the fact that there was no nest the territory was vigorously defended.

The other nest seemed to be equally near the edge of its territory ; the boundary seemed to be the upper edge of the beach fringing the salt-marsh. In this case, however, I cannot be absolutely certain, for on this side there was no other Ringed Plover's territory, nor did intruding birds wander into the territory from the sand-dunes. The only evidence was that a Meadow-Pipit (*Anthus pratensis*) was twice chased when on the salt-marsh and ignored when it alighted at the edge of the beach.

The "injury-feigning" display of the Ringed Plover when danger threatens its nest or young is well known. When one walked along the spit of sand-dunes one pair after another would give this display, which was frequently most elaborate. The most interesting feature was, however, that other birds came up from all sides and ran around in a loose flock of about eight or ten birds or flew around calling "too-i,too-i". The flock was frequently closer to me than the displaying birds and must often have been in their territory. When I was examining nests in that part of the salt-marsh where the territorial boundaries were known the flock frequently trespassed on neighbouring territories. I watched carefully, but saw no sign of an aggressive reaction by the owners of those territories. On the other hand, if a displaying bird encroached on a neighbouring territory, it was often threatened and driven off.

A threat display made at birds in the flock was only seen twice. In both cases the threat was ignored and the aggressive bird seemed to be half-hearted about it, for it stopped displaying almost immediately and ran around with the flock. The aggressive birds were in the middle of the flock when I first saw the threat display. It is probable that the flock was on the aggressive birds' territories, but, as the boundaries on that part of the marsh were not known, I cannot be absolutely definite.

I was puzzled at first to account for the presence of the birds forming the flock and supposed that they were either non-breeding birds or birds whose nests had been destroyed by the recent spring tides. Later observations showed, however, that this supposition was wrong, and that most of the birds in the flock were the mates of birds who were brooding. When the young are hatched they stay in or around the nest for two or three days. They then leave with both the parents for the feeding-grounds and the territory is abandoned. Most of the eggs in the area under observation hatched between July 7th and 10th ; by the 12th only two of nine territories were occupied and the flock had dwindled to only three or four birds. On one occasion, on July 12th, one of the four birds in the flock made a vigorous aggressive display at the others, who submitted and ran away.

This flocking up when danger threatens is unusual and unexpected behaviour for territorial birds. It appears that the size of the flock has a decisive effect on behaviour. The presence of a flock of about eight birds seemed to inhibit normal territorial reactions. This may be due simply to the fact that the owner of the territory was overawed by the number of intruders and was afraid to act aggressively towards them. My impression at the time, however, was that the owners of invaded territories became part of the flock and ceased to react as territory owners. When the number of birds present fell to three or four they seemingly did not constitute a flock, for the owners of the invaded territory and the other birds reacted as individuals ; the former making an aggressive display and the latter submitting to it.

L. S. V. Venables has described similar behaviour for Dartford Warblers (*Sylvia undata*) (*antea*, Vol. xxvii, pp. 58-63). From his observations, Venables came to the conclusion that when Dartford Warblers are thickly distributed the territories, instead of being compressed, are shared by two or three pairs. This conclusion was based on the assumption that the "anxiety area" coincided with the territory. Mr. Venables has, however, informed me that later observations have made him distrust this assumption, and that while in some cases several pairs do share an "anxiety area" during the abnormal stress of the presence of man, this area does not necessarily coincide with a common territory.

Similar behaviour is also described by Lack and Light for the Blackbird (*Turdus m. merula*) (*antea*, Vol. xxxv, p. 52). In this case the cause was usually the presence of an owl, but on one occasion a rat was suspected and others were false alarms. Mention may also be made of the behaviour of Lesser Redpolls (*Carduelis flammea cabaret*) observed by Ingram and Salmon (*antea*, Vol. xvii, p. 94). A female was disturbed on a nest containing young birds, and a flock of five or six birds came up when she uttered the alarm-note. In this case, however, the female resisted the intruders and drove them off.

Every "outside" bird, regardless of species, which was seen to alight in, or wander into, a territory was driven off. Sometimes the aggressive Ringed Plover used the threat display against birds of other species. Terns, a Dunlin, and a Meadow-Pipit were driven out of four different territories. When chasing away a Meadow-Pipit the aggressive Ringed Plover did not display, but just tucked in its head and ran at the pipit. The Meadow-Pipit did not go far and had to be threatened a second time before it flew outside the territory. The Dunlin (*Calidris alpina schinzii*) was driven away by a Ringed Plover nesting in the middle of a small colony of Little Terns. The Dunlin was feeding on the beach about twenty yards from the Ringed Plover's nest. The Ringed Plover ran at it, making the aggressive display ; the Dunlin ran about ten yards and was left alone for a few minutes, when the Ringed Plover again threatened it with the aggressive display and this time chased it about fifty yards from the nest.

Common Terns (*Sterna h. hirundo*) were driven off two different territories ; by the islet birds and by a bird I was photographing. It is significant that in both cases terns which were nesting a few feet away from the Ringed Plovers' nests, and well within their territories, were tolerated and appeared to be ignored. The aggression was confined to strangers or, at least, to birds which alighted on territorial ground away from any tern's nest.

When I was photographing a Ringed Plover on its nest, a Common Tern alighted about ten yards away. The brooding Ringed Plover immediately left the nest and circled so that it came half head on to the tern. It stopped when about three or four yards away and called "too-i, too-i." It then hunched its head in and ran straight at the tern, which flew away. The Ringed Plover did not display. At the time there were two other terns brooding on their nests considerably closer than the tern which was attacked.

The islet birds did make the aggressive display when attacking a tern. One bird was brooding and the other sitting about three feet away from the nest when a tern alighted on the salt-marsh about 20 yards away. Both Ringed Plovers jumped up and ran at the tern, one at each side, and both Ringed Plovers made the aggressive display. The tern did not seem inclined to move, but made a couple of flips to get out of the way. Both of the Ringed Plovers made little fluttering jumps at the tern and actually attacked it in the air ; the tern flew away.

It is clear from the fact that in two cases the aggressive display was made, and from the fact that every intruding stranger was attacked, that the attacks on birds of other species must be regarded as part of the Ringed Plover's territorial behaviour.

From the analogy of territorial behaviour of a typical small passerine one would not expect to find that Ringed Plovers keep their territories exclusive from birds of other species. The conditions are, however, quite different. The Ringed Plover's territory is much smaller and the nature of the ground usually allows the whole territory to be in view from one position. If a small passerine, with a territory of about 1½ acres, attempted to drive away all other species it would be so fully occupied in the task that the successful rearing of a brood might well be jeopardised. Natural selection would tend to eliminate such a strain.

The fact that terns submitted and were driven away is interesting. A tern is quite able to hold its own with a Ringed Plover and Ringed Plover are frequently attacked and chivvied by individual terns. The reason the terns submitted when the Ringed Plover attacked them is probably that they had no reason to want to stay in that particular place. In many places terns nested quite close to Ringed Plovers, and in several instances the terns' nests were more recent than the Ringed Plovers', whose eggs hatched before the terns had finished laying. Presumably these terns achieved tolerance by standing their ground long enough or returning frequently enough for the Ringed Plover to get used to them.

It is clear both from the size of the territories and from the feeding habits of the birds that the territory of Ringed Plover is not a food area. The two pairs under close observation did feed to a certain extent in their territories, but they were exceptional inasmuch as their territories included salt-marsh. Most birds have only the poor feeding-ground of an ordinary beach included in their territory.

At Malahide, practically every typical nesting territory, i.e., shingly beach, was occupied by a pair of Ringed Plover. A few birds nested in unusual situations, such as in clumps of marram grass and on the sand-dunes 30 or 40 yards from the nearest beach. This may be due to the large population, attracted by the almost unlimited feeding in the estuary, causing a shortage of more normal sites. Whether or not this is the case it is quite clear that the territorial behaviour of the Ringed Plover does set a definite limit to the breeding population at Malahide, although it is impossible to say whether this limit has in fact been reached. Even if every square yard of suitable ground was parcelled out the population of Ringed Plover would only be in the order of hundreds. In the same area there are thousands of terns.

In conclusion, I would like to acknowledge my indebtedness to Mr. G. R. Humphreys for his helpful criticism and for drawing my attention to several references.

SUMMARY.

Ringed Plover, during the breeding-season, own a territory around the nest from which all intruding birds, of any species, are driven off. The size of the territory is small ; of the order of 30 by 30 yards. Under the influence of excitement, such as is engendered by the intrusion of a human, Ringed Plover form flocks and, if the flock is large enough numerically, normal territorial behaviour is inhibited. There is no direct connexion between the territories and food supply, but territorial behaviour does set a limit to the local breeding population.

MIGRANTS THROUGH MALTA AND GOZO: OCTOBER, 1941 TO JULY, 1945

BY

JOHN GIBB.

BETWEEN autumn 1941 and spring 1945, I had an opportunity of noting the comings and goings of migrants through the islands of Malta and Gozo. The vast majority of the birds seen were British birds, in so far as they are on the British List, and were passage migrants. Malta's resident species are few, although many species are reputed to have bred on the islands from time to time. Only three of the species in the table below are regular summer visitors, the Short-toed Lark, Woodchat Shrike and Swift. The following are regular winter visitors: Starling, Greenfinch, Linnet, Serin, Chaffinch, Sky-Lark, Grey Wagtail, White Wagtail, Chiffchaff, Song-Thrush, Stonechat, Black Redstart, Robin, Golden Plover and Lapwing. Linnets breed yearly in small numbers on Gozo; the dates given in the table refer to non-breeding birds in Malta, the winter visitors and not the residents.

In the case of passage migrants I have tried to note the first and last dates for both spring and autumn; for summer and winter visitors I have recorded the first date of spring and last of autumn for the former, or first date of autumn and last of spring for the latter. Only those species (approx. 50% of the total number of species recorded) for which I have obtained data of interest are included in the table, which is therefore not a complete record of all species seen.

From the number of gaps in the table covering even these selected species it is clear that four years' casual observation is insufficient for one recorder to obtain anything like a complete record. I make no apology for this failure. Malta as a migrant station has been sadly neglected, for its strategic position warrants the closest and continuous attention. My own notes, of which the table set out below forms a part, comprise a mere drop in the ocean of detail hitherto unrecorded.

NOTES.

The following are a few comments on particular species or comparisons with the recorded experience of previous observers, where such seem desirable.

STARLING.—Blasius (1895) gives his first autumn date as October 25th (1886 and 1890).

GOLDEN ORIOLE.—Blasius has April 22nd (1891) as his first spring date, and May 18th (1894) as the last.

CHAFFINCH.—The last spring date given by Blasius is March 29th (1888). My own last date for spring, 1945, records a female showing no signs of breeding, nor of being an escape; the last previous bird was on March 21st.

SKY-LARK.—Despott (1917) says that this species and the Short-toed Lark never meet on Malta; ". . . when one arrives, the other is already gone." My last date for spring, 1945, overlapped by eleven days with the first Short-toed Lark arrivals. I saw two Sky-Larks together on April 8th that year, the first since March 16th.

SPECIES	*Autumn* 1941	*Spring* 1942	*Autumn* 1942	*Spring* 1943	*Autumn* 1943	*Spring* 1944	*Autumn* 1944	*Spring* 1945
Starling (*Sturnus v. vulgaris*)	Nov. 11 to	—	Sep. 30 to	Mar 22	Oct. 6 to	—	Oct. 6 to	—
Golden Oriole (*Oriolus o. oriolus*)	— —	May 4 May 20	— —	Apl. 28 May 22	— —	Apl. 23 —	— —	Apl. 16 May 30
Greenfinch (*Chloris ch. ? aurantiiventris*)	—	—	Nov. 3 to	—	Oct. 29 to	—	Oct. 24 to	Mar. 13
Linnet (*Carduelis cannabina ? mediterranea*)	Oct. 16 to	Apl. 3	Nov. 3 to	Mar. 24	Oct. 29 to	Apl. 2	Oct. 18 to	Apl. 8
Serin (*Serinus canarius serinus*)	— to	Feb. 21	— to	Mar. 4	—	—	Nov. 6 to	Apl. 1
Chaffinch (*Fringilla c. cœlebs*)	Oct. 16 to	Apl. 1	Nov. 1 to	Mar. 13	Oct. 17 to	Mar. 21	Oct. 24 to	May 9
Short-toed Lark (*Calandrella b. brachydactyla*)	—	Apl. 18 to	Sep. 15	Mar. 28 to	Sep. 19	Apl. 2 to	Sep. 18	Mar. 28 to
Sky-Lark (*Alauda arvensis* ? subspecies)	Oct. 29 to	Feb. 8	Oct. 25 to	Mar. 4	Oct. 14 to	—	Oct. 8 to	Apl. 8
Tawny Pipit (*Anthus c. campestris*)	— —	Apl. 3 —	Sep. 3 Sep. 15	Apl. 11 —	— Sep. 14	— —	— Oct. 6	Apl. 25 —
Tree-Pipit (*Anthus t. trivialis*)	— —	Apl. 11 —	— —	Mar. 28 —	— —	— —	Sep. 6 —	Mar. 27 May 18
Meadow-Pipit (*Anthus pratensis*)	Nov. 4 to	Apl. 19	Nov. 1 to	Apl. 1	Oct. 12 to	Apl. 7	Oct. 18 to	Apl. 15
Blue-headed Wagtail (*Motacilla f. flava*)	— —	Apl. 3 —	— —	Apl. 30 May 26	Oct. 12 —	Apl. 23 May 10	Aug. 24 Oct. 9	Mar. 31 May 14
Ashy-headed Wagtail (*Motacilla flava cinereocapilla*)	— —	Apl. 3 —	— —	— —	— —	Mar. 31 Apl. 23	Sep. 5 Oct. 9	Mar. 31 May 23

SPECIES	*Autumn* 1941	*Spring* 1942	*Autumn* 1942	*Spring* 1943	*Autumn* 1943	*Spring* 1944	*Autumn* 1944	*Spring* 1945
BLUE-, ASHY-HEADED WAGTAIL	—	Apl. 3	Sep. 4	—	Sep. 7	—	Aug. 23	Mar. 31
(includes birds not separately identified)	—	—	Sep. 30	—	Nov. 9	May 3	Oct. 9	May 23
BLACK-HEADED WAGTAIL	—	—	—	—	—	—	—	Mar. 31
(*Motacilla flava feldegg*)	—	—	—	Apl. 30	—	—	—	May 20
GREY WAGTAIL	Dec. 25		Nov. 4		Oct. 9		Oct. 13	
(*Motacilla c. cinerea*)	to	—	to	Mar. 13	to	Jan. 13	to	Feb. 28
WHITE WAGTAIL	Oct. 24		Oct. 18		Oct. 17		Oct. 27	
(*Motacilla a. alba*)	to	Apl. 3	to	Apl. 4	to	Apl. 7	to	Apl. 6
WOODCHAT SHRIKE		Apl. 11		—		Apl. 20		Apl. 25
(*Lanius s. senator*)	—	to	—		—	to	—	
SPOTTED FLYCATCHER	—	Apl. 24	—	May 3	—	Apl. 19	—	Apl. 27
(*Muscicapa s. striata*)	—	May 10	—	May 24	—	May 10	—	May 15
PIED FLYCATCHER	—	Apl. 3	—	—	—	Apl. 15	—	Apl. 12
(*Muscicapa h. hypoleuca*)	—	May 9	—	—	—	May 5	—	May 15
COLLARED FLYCATCHER	—	—	—	—	—	Apl. 9	—	Apl. 12
(*Muscicapa albicollis*)	—	—	—	—	—	Apl. 15	—	Apl. 17
CHIFFCHAFF	—		Nov. 5		Nov. 1		Nov. 6	
(*Phylloscopus c. collybita*)	to	Mar. 30	to	Mar. 24	to	Mar. 31	to	Mar. 25
WILLOW-WARBLER	—	Apl. 3	—	Apl. 4	—	Mar. 26	—	Apl. 12
(*Phylloscopus trochilus* ? subspecies)	—	—	—	—	—	Apr. 20	—	Apl. 14
WOOD-WARBLER	—	Mar. 29	—	May 12	—	Apl. 14	—	Apl. 12
(*Phylloscopus sibilatrix*)	—	May 8	—	May 22	—	Apl. 15	—	May 9
ICTERINE WARBLER								
(*Hippolais icterina*)	Oct. 11	May 4	Sep. 19	—	—	May 2	—	May 5
MELODIOUS WARBLER	—	May 17	—	—	—	—	—	Jun. 3
(*Hippolais polyglotta*) ...								

SPECIES	*Autumn* 1941	*Spring* 1942	*Autumn* 1942	*Spring* 1943	*Autumn* 1943	*Spring* 1944	*Autumn* 1944	*Spring* 1945
Garden-Warbler (*Sylvia borin*)	Oct. 18 Oct. 21	May 4 May 9	Sep. 20 Oct. 10	May 3 May 22	— —	Apl. 2 May 5	— —	Apl. 18 Apl. 27
Whitethroat (*Sylvia c. communis*)	— —	Apl. 4 —	— —	— —	— —	Apl. 19 —	— —	Apl. 8 May 9
Subalbine Warbler (*Sylvia c. cantillans*)	— —	Mar. 24 Apl. 19	— —	— May 3	— —	Apl. 14 May 2	— —	Mar. 30 Apl. 14
Song-Thrush (*Turdus ericetorum philomelus*) ...	Oct. 17 to	Feb. 13	Oct. 17 to	Mar. 22	Oct. 16 to	Apl. 2	Oct. 24 to	Apl. 18
Rock-Thrush (*Monticola saxatilis*)	— —	Mar. 29 Apl. 19	— —	— —	— —	Apl. 2 Apl. 9	— —	Mar. 28 Apl. 17
Wheatear (*Œnanthe œ. œnanthe*)	— Oct. 7	Mar. 21 May 9	Sep. 9 Sep. 28	Apl. 3 —	Aug. 20 Oct. 14	Mar. 20 Apl. 28	Aug. 20 Oct. 13	Mar. 25 Apl. 19
W. & E. Black-eared Wheatear (*Œnanthe h. hispanica*) (*Œnanthe hispanica melanoleuca*)	Oct. 1 Oct. 7	Mar. 28 Apl. 3	Sep. 3 Sep. 10	— —	— —	Mar. 24 Apl. 9	— Oct. 1	Mar. 25 Apl. 17
Whinchat (*Saxicola rubetra*)	— —	Apl. 19 May 9	Sep. 9 —	May 5 May 22	— —	Apl. 9 May 5	— —	Apl. 8 May 15
Stonechat (*Saxicola torquata rubicola*)	Oct. 23 to	Jan. 14	Nov. 1 to	Mar. 7	Oct. 14 to	— —	Oct. 23 to	Mar. 8
Redstart (*Phœnicurus ph. phœnicurus*) ...	Oct. 4 Dec. 2	Mar. 28 May 23	Sep. 12 Oct. 14	— May 3	Sep. 17 Nov. 1	Apl. 2 May 5	Oct. 8 Oct. 18	Mar. 30 Apl. 17
Black Redstart (*Phœnicurus ochrurus gibraltariensis*)	Nov. 22 to	Apl. 3	Nov. 4 to	Mar. 24	Nov. 1 to	Mar 31	Dec. 6 to	Mar. 25
Nightingale (*Luscinia m. megarhyncha*)	— —	Mar. 28 Apl. 19	Sep. 19 —	— —	— —	Apl. 9 May 5	— —	Mar. 30 Apl. 27

SPECIES	*Autumn* 1941	*Spring* 1942	*Autumn* 1942	*Spring* 1943	*Autumn* 1943	*Spring* 1944	*Autumn* 1944	*Spring* 1945
CONTINENTAL ROBIN	Oct. 14		Oct. 18		Oct. 22		Oct. 24	
(*Erithacus r. rubecula*)	to	Feb. 14	to	Feb. 21	to	Mar. 29	to	Mar 21
SWALLOW	—	Mar. 17	Sep. 7	Mar. 22	Aug. 23	Mar. 20	Aug. 13	Mar. 19
(*Hirundo r. rustica*)	Nov. 11	May 25	Oct. 31	May 28	Nov. 1	Jun. 19	Oct. 31	Jun. 24
RED-RUMPED SWALLOW	—	—	—	—	—	Apl. 19	—	—
(*Hirundo daurica rufula*)	—	—	—	—	—	May 5	—	—
HOUSE-MARTIN	—	Apl. 3	—	Apl. 3	Oct. 7	Mar. 21	Sep. 4	Mar. 28
(*Delichon u. urbica*)	—	Jun. 4	—	Jun. 8	Nov. 24	May 27	Oct. 29	Jun. 15
SAND-MARTIN	—	—	—	Mar. 17	—	Mar. 31	Oct. 4	Mar. 31
(*Riparia r. riparia*)	—	May 4	—	—	—	May 3	Oct. 18	May 20
ALPINE SWIFT	—	—	—	—	—	Apl. 4	—	Mar. 28
(*Apus m. melba*)	—	—	—	—	—	Apl. 23	Oct. 7	May 30
SWIFT		Apl. 3		—		Mar. 28		Mar. 24
(*Apus a. apus*)	—	to	Aug. 1	to	Jul. 27	to	Aug. 16	to
NIGHTJAR	—	Apl. 24	—	—	—	Apl. 26	Oct. 8	Apl. 6
(*Caprimulgus e. europæus*)	—	May 11	—	—	—	May 15	—	May 13
HOOPOE	—	Mar. 21	Sep. 3	Mar. 24	—	Mar. 21	Sep. 19	Apl. 4
(*Upupa e. epops*)	—	Apl. 3	Oct. 2	May 22	—	May 4	—	May 10
WRYNECK	—	Mar. 28	—	Apl. 12	—	Mar. 28	—	Mar. 28
(*Jynx torquilla* ? subspecies) ...	—	Apl. 19	Dec. 1	—	—	May 5	Nov. 21	Apl. 14
CUCKOO	—	Apl. 15	—	—	—	Apl. 2	—	Apl. 8
(*Cuculus c. canorus*)	—	—	—	—	—	May 5	—	May 9
HOBBY	—	Apl. 11	Sep. 15	Apl. 28	Oct. 6	Apl. 29	Sep. 4	—
(*Falco s. subbuteo*)	—	May 5	—	—	—	Jun. 19	Sep. 15	—
LESSER KESTREL	Nov. 19	Mar. 24	—	Mar. 17	—	Mar. 30	—	Mar. 27
(*Falco n. naumanni*)	—	Apl. 3	—	—	—	—	—	—

SPECIES	*Autumn* 1941	*Spring* 1942	*Autumn* 1942	*Spring* 1943	*Autumn* 1943	*Spring* 1944	*Autumn* 1944	*Spring* 1945
MARSH-HARRIER (*Circus æ. æruginosus*)	— —	— —	— —	Apl. 4 Apl. 28	Oct. 6 —	— May 10	— —	Apl. 7 Apl. 21
MONTAGU'S, HEN- & PALLID HARRIER (Females) (*Circus pygargus*, *C. cyaneus* and *C. macrourus*)	— —	Apl. 2 Apl. 21	Sep. 9 —	Apl. 1 Apl. 28	— —	Apl. 9 Apl. 22	Sep. 28 —	Mar. 22 Apl. 6
PALLID HARRIER (Males) (*Circus macrourus*)	— —	Mar. 24 Apl. 1	— —	Apl. 5 —	— —	Mar. 25 Apl. 6	— —	Mar. 21 Apl. 8
SPARROW-HAWK (*Accipiter n. nisus*)	Oct. 4 Nov. 19	— —	Sep. 9 —	— —	Sep. 23 —	— —	— —	— —
BLACK KITE (*Milvus m. migrans*)	— —	Mar. 31 —	— —	— Apl. 16	— —	— —	— —	Mar. 31 Apl. 29
HONEY-BUZZARD (*Pernis a. apivorus*)	— —	Mar. 7 Jun. 9	Sep. 18 Oct. 14	Apl. 2 May.30	Sep. 21 Oct. 9	Mar. 20 May 23	Sep. 15 Oct. 9	Apl. 12 Jun. 1
COMMON HERON (*Ardea c. cinerea*)	Oct. 7 —	Mar. 21 Apl. 11	— —	— —	Oct. 7 Oct. 11	Mar. 27 —	— —	— —
PURPLE HERON ... ... (*Ardea p. purpurea*)	— —	— —	Sep. 3 —	Apl. 11 Apl. 12	Sep. 12 Oct. 3	— —	Sep. 18 Oct. 13	Apl. 6 —
SQUACCO HERON ... ... (*Ardeola ralloides*)	— —	— —	— —	— —	— —	— —	— —	Apl. 6 May 14
TURTLE-DOVE (*Streptopelia t. turtur*)	— —	Apl. 11 Jun. 28	Sep. 3 Sep. 10	Apl. 28 Jun. 8	Sep. 7 —	Apl. 19 Jun. 16	Sep. 22 Oct. 8	Apl. 14 May 30
CURLEW (*Numenius a. arquata*)	— —	— —	— —	— —	Oct. 17 —	Apl. 26 —	Oct. 13 —	— —
DUNLIN (*Calidris alpina*)	— —	— —	— —	Apl. 30 May 23	Sep. 4 Oct. 22	— May 31	Aug. 23 Sep. 7	Apl. 18 Apl. 27

SPECIES	*Autumn* 1941	*Spring* 1942	*Autumn* 1942	*Spring* 1943	*Autumn* 1943	*Spring* 1944	*Autumn* 1944	*Spring* 1945
CURLEW-SANDPIPER	—	—	—	—	Sep. 5	Apl. 23	—	Apl. 18
(*Calidris testacea*)	—	—	—	May 26	Sep. 8	May 31	—	May 8
LITTLE STINT	—	—	—	Apl. 30	Sep. 4	Apl. 7	Aug. 16	Mar. 31
(*Calidris minuta*)	—	—	—	May 26	Oct. 17	Jun. 9	Sep. 7	May 14
RUFF	—	—	—	Apl. 30	Oct. 3	Apl. 7	Aug. 20	Feb. 28
(*Philomachus pugnax*)	—	—	—	May 23	—	Jun. 9	Sep. 5	May 20
COMMON SANDPIPER	—	—	—	Apl. 5	Sep. 10	Mar. 31	Aug. 13	Apl. 12
(*Actitis hypoleucos*)	—	—	—	May 23	—	May 13	Nov. 19	Jun. 2
WOOD-SANDPIPER	—	—	—	Apl. 30	—	—	Aug. 16	Mar. 3
(*Tringa glareola*)	—	—	—	—	—	—	Sep. 7	Apl. 15
REDSHANK	—	—	—	Apl. 5	Nov. 1	Apl. 8	Aug. 25	—
(*Tringa t. totanus*)	—	—	—	—	—	Apl. 12	Oct. 13	—
GREENSHANK	—	—	—	Apl. 30	Oct. 22	Apl. 12	Sep. 23	Mar. 31
(*Tringa nebularia*)	—	—	—	May 23	—	Apl. 28	—	Apl. 18
MARSH-SANDPIPER	—	—	—	Apl. 30	—	Apl. 30	—	Apl. 29
(*Tringa stagnatalis*)	—	—	—	—	—	—	—	—
RINGED PLOVER	—	—	—	Apl. 30	Oct. 3	Apl. 30	Aug. 16	—
(*Charadrius h. hiaticula*)	—	—	—	May 5	—	May 31	Sep. 23	—
LITTLE RINGED PLOVER	—	Mar. 30	—	Apl. 30	Oct. 22	Mar. 31	Aug. 23	Apl. 4
(*Charadrius dubius curonicus*) ...	—	—	—	—	—	May 11	Oct. 13	May 14
KENTISH PLOVER	—	—	—	—	—	Apl. 7	—	Apl. 6
(*Leucopolius a. alexandrinus*) ...	—	—	—	—	—	—	—	—
GOLDEN PLOVER	—	—	Nov. 13	—	Oct. 13	Mar. 20	Oct. 18	—
(*Pluvialis apricaria* ? subspecies) ...	—	—	—	—	Dec. 7	—	—	—
LAPWING	Nov. 29		Nov. 20		—		Nov. 24	
(*Vanellus vanellus*)	to	Jan. 2	to	Feb. 1	to	Mar. 20	to	Nov. 25

TAWNY PIPIT.—Blasius's last spring date is April 15th (1892).

SONG-THRUSH.—The single bird on April 18th, 1945, was the first since March 22nd.

WHEATEAR.—From 1886 to 1894, inclusive, Blasius had only one August record : August 22nd (1888).

STONECHAT.—The first autumn arrival date by Blasius, November 29th (1888), is from four to six weeks later than my average.

REDSTART.—In the autumn of 1941 a pair turned up on November 29th, following stormy weather and westerly gales ; they remained until December 2nd. The last previous example had been seen on October 22nd.

SWALLOW.—Blasius has no August records, but one for July 3rd (1893) from Gozo. The first bird of autumn 1944 followed upon a severe and quite unseasonable thunderstorm : the next was seen three weeks later, on September 5th.

SWIFT.—Blasius has only one March record in his nine years.

WRYNECK.—Although Wright (1864) says that this species is one of the earliest spring migrants through Malta, Blasius gives his first arrival date as April 6th (1889).

HOBBY.—The last bird seen previous to that on June 19th, 1944, was on May 14th.

SPARROW-HAWK.—I have an isolated record for July 24th (1942) not included in the table.

HONEY-BUZZARD.—It is a curious feature of the spring passage that it occurs in two waves ; the main influx being followed by a lesser one. For example, in the spring of 1942, birds were seen regularly from March 7th to May 5th ; the next and last on May 30th. In 1944, seen regularly from March 20th to April 22nd ; followed by one on May 13th, and the last on May 23rd. In 1945, regularly from April 12th to May 4th ; followed by one on May 28th, three on June 1st, and the last on June 2nd. Although the numbers in any one year, except possibly 1945, are insufficient to make the second wave at all conspicuous, the tendency is better detected over the four years.

TURTLE-DOVE.—The last bird seen previous to the three recorded on June 28th, 1942, was on May 14th ; the last previous to one on June 8th, 1943, was on May 20th.

RUFF.—Two reeves seen on February 28th, 1945 ; the next not until March 31st.

WADERS.—It will be noticed that the first spring date of 1943 for several species was April 30th. On this day I discovered a small muddy pond which I had not previously visited, and found it peppered with a great assortment of waders. From notes of the next two years it is clear that April 30th was not, in fact, a true first arrival date for at least some of those species against which it is found in the table.

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NOTES ON THE BIRDS OF ABBERTON RESERVOIR, ESSEX

BY

JAMES W. CAMPBELL.

On September 4th, 1938, I visited Abberton, near Colchester, Essex, to see the work which was being carried out on the construction of a new reservoir by the South Essex Waterworks Company. Some floodwater had collected near the main dam, and on it were a Mallard (*Anas p. platyrhyncha*), a pair of Pochard (*Aythya ferina*), some Coots (*Fulica a. atra*), a Little Grebe (*Podiceps r. ruficollis*) and many Common Gulls (*Larus c. canus*) and Black-headed Gulls (*Larus r. ridibundus*).

These were the first observations I made on the effect which this reservoir was to have on the bird-life of the district, and they were responsible for the drawing up of ambitious plans, which were frustrated by the outbreak of war. However a number of observations were made, mainly counts of the wildfowl that occurred after the first filling of the Upper area, which may be of some interest, now that Abberton has become an important bird haunt, in showing how quickly it proved attractive to them.

Abberton Reservoir occupies part of the valley of the Layer Brook and lies about three miles south of Colchester and within two miles of the extensive marshes of the Blackwater estuary. Although the area now occupied by the reservoir was formerly arable and grazing lands typical of this part of Essex, the valley of the Layer Brook, no doubt due to the proximity of the estuary, was always attractive to wildfowl and waders in small numbers. The reservoir, which occupies 1,210 acres, extends from just west of Layer Breton Hall eastwards to Abberton Church. It is divided by the two causeways now conveying the roads from Layer Breton and Layer de la Haye to Wigborough, into Upper, Middle and Lower parts, each of which is quite distinct in character. The Upper area—the most westerly—receives the Layer Brook at its west end and functions as a settling tank for this supply. The verges, except at the east end where the concrete causeway crosses, are now fringed with rushes and other waterside vegetation, which afford good cover and give it the character of a lake. When first flooded in 1939 they were grassy and quite devoid of cover. The Middle portion situated between the two concrete causeways, differs from the Upper in having gently sloping grassy verges on its northern and southern shores, which are close-grazed in winter by Wigeon (*Anas penelope*) and other fowl. Between this turf and the boundary fence there is rough tussocky grass. The Lower area is completely enclosed by concrete facings and there is a small island in the bay nearest Layer de la Haye church, but this is submerged when the reservoir is full. I am indebted to Mr. S. Allderidge for the following details :

"Concerning the areas of water, the Upper portion, which has a constant water level and area and a reed verge (with a concrete wall 24 ins. high and post and wire fence) is 41 acres. The Middle portion, which rises and falls as water is raised or lowered, has an area when *full* of 130 acres. This has a grass verge with the concrete wall and fence at top water level. It is only about 90 acres when the water is ten feet below top levels. The Lower portion, which is surrounded by the marginal slopes, has an area of 1,039 acres when full and about 1,000 acres when the water is ten feet below top levels. During the war we had to keep the levels down, so that at the end of each summer, it was about ten feet below top water levels of 60.00 O.D." During the construction of the reservoir, flood water accumulated from time to time and this of course attracted birds, but no observations, apart from the records given above, were made during this period. On January 26th, 1939, the Upper area was filled, and as it was a compact area easily worked, I decided to carry out regular counts of the waterfowl on it. The rest of the reservoir was not completed and filled until after the outbreak of war. The chief source of supply is water pumped from the Stour valley and this has produced some interesting changes in the fish population, which since the first fillings has been a flourishing one. Counts were started at the Upper area on March 11th, 1939, and visits were made as follows :—March, eleven ; April, seven ; May, eight ; June, three ; July, three ; August, three. During the war years only fleeting visits were paid, but in the winter 1945-1946, six visits were made in an attempt to get some idea of the populations of the whole reservoir, as there are now some remarkable gatherings of wildfowl on it (see *antea*, Vol. xxxviii, p. 279, and Vol. xxxix, p. 223). It is not easy to work the whole reservoir : besides its extent there is the local disturbance factor to be taken into account, and there is also much natural coming and going between the reservoir and the estuary, and between the different areas of the reservoir itself. Fortunately I have had the use of a stand telescope, x 40, of naval pattern, adapted for bird-watching, which has been invaluable for this purpose. There is much interesting work to be done on the bird-life of this reservoir, and the effect which it has had on the wildfowl populations elsewhere, in particular on the Blackwater estuary and other reservoirs in the home counties. The following notes are not intended to provide a complete account of the birds of this remarkable sheet of water.

I wish to acknowledge my thanks to the South Essex Waterworks Company for permission to visit their reservoir and to Mr. S. Allderidge for all the help he has given me.

OBSERVATIONS.

During 1939, observations were confined to the Upper area, and these counts refer only to this area, except where otherwise stated.

In addition to the species dealt with below the following were also noted :—

PIED WAGTAIL (*Motacilla alba yarrellii*), COMMON HERON (*Ardea c. cinerea*), MUTE SWAN (*Cygnus olor*), COMMON CURLEW (*Numenius a. arquata*), COMMON SNIPE (*Capella g. gallinago*), DUNLIN (*Calidris alpina*), RINGED PLOVER (*Charadrius hiaticula*), GOLDEN PLOVER (*Pluvialis apricaria*), LAPWING (*Vanellus vanellus*), BLACK-HEADED GULL (*Larus r. ridibundus*), COMMON GULL (*Larus c. canus*), HERRING-GULL (*Larus a. argentatus*), GREAT BLACK-BACKED GULL (*Larus marinus*), MOORHEN (*Gallinula ch. chloropus*).

YELLOW WAGTAIL (*Motacilla flava flavissima*). One seen on August 19th, 1939, was the first observed ; numerous in following seasons.

GREY WAGTAIL (*Motacilla c. cinerea*). One on November 16th, 1945.

SEDGE-WARBLER (*Acrocephalus schœnobænus*). One in song, June 8th, 1939.

SHELD-DUCK (*Tadorna tadorna*). Several pairs nested annually in the valley of the Layer Brook prior to the construction of the reservoir. 1939 :—Eight on March 14th, and some were present on most subsequent visits. At least 20 on May 26th ; 39 adults and 11 recently hatched ducklings on June 20th ; on August 19th, 25 full-grown immatures, but no adults. 1946 :—One, on Lower, on February 10th.

MALLARD (*Anas p. platyrhyncha*). 1939 :—121 on March 11th, when the first count was made. Seen subsequently on most visits, but never more than four, except on April 17th, when there were seven drakes and six ducks, and June 8th, four drakes and two ducks. 1941 :—February 10th, several hundreds on Middle. 1946 :—On the whole reservoir : 20 to 30, January 27th; two to three thousand, February 10th ; several hundreds, March 3rd.

GADWALL (*Anas strepera*). 1939 :—One drake on March 11th ; one pair on March 23rd, 25th, 26th ; one drake consorting with a Wigeon duck on March 30th and 31st, both birds doing much "excited" diving ; one drake on April 4th ; five on August 19th.

TEAL (*Anas c. crecca*). 1939 :—32 on March 11th. Present on most visits until April 7th, largest counts being 17 drakes and 15 ducks on March 23rd. 12 pairs doing much diving on March 30th, and 15 drakes and 13 ducks on April 6th. Not observed again until August 19th, when 80 were counted. 1941 :—Several hundreds on Middle on February 20th. The maximum estimate for visits made between October 7th, 1945, and March 3rd, 1946, was 200 for the whole reservoir.

GARGANEY (*Anas querquedula*). 1939 :—13 on August 17th ; 8 on August 18th ; 7 on August 19th. 1940 :—At least two pairs on May 1st ; one pair on May 4th.

WIGEON (*Anas penelope*). 1939 :—47 on March 11th ; four drakes and six ducks on March 23rd ; two pairs, and one duck consorting with drake Gadwall, on March 31st ; five pairs on April 4th, when last observed. 1941 :—Several hundreds on February 20th, on Middle. 1945 :—The following records refer to the Middle area ; four to five hundred on October 7th ; six to seven hundred on November 16th ; on December 19th, many but no estimate or count. 1946 :—These records refer to the whole reservoir : many, not counted, on January 11th, two to three thousand on January 27th ; two to three hundred on February 10th ; one to two hundred on March 3rd.

PINTAIL (*Anas a. acuta*). 1939 :—Five drakes and four ducks on March 11th. 1945 :—Numerous in November and December, but not counted. 1946 :—Two to three hundred, mainly drakes, on January 27th ; on February 10th and March 3rd, still plenty, but not so numerous.

SHOVELER (*Spatula clypeata*). 1939 :—Two on March 11th ; present on most subsequent visits March to August. Largest counts were five drakes and two ducks on April 6th, and seven drakes and one duck on June 6th, and seven on August 19th. 1945 :—About a dozen on Middle on Novenber 16th.

COMMON POCHARD (*Aythya ferina*). 1939 :—Two drakes and one duck on May 4th ; one drake on May 26th ; 15 drakes and 4 ducks on June 4th ; 6 drakes and one duck together, and two pairs apart, on June 8th ; at least three ducklings identified on July 17th ; one pair on August 19th. On nearly all visits present in some numbers, the most being between five and six hundred on November 16th, 1945, at the Upper area.

TUFTED DUCK (*Aythya fuligula*). 1939 :—One pair on April 19th ; two drakes on May 26th and June 4th ; one pair on August 18th. Numerous on most subsequent visits, the highest estimate being about 200 on February 10th, 1946, for the whole reservoir.

SCAUP-DUCK (*Aythya m. marila*). 1945 :—Three immatures on Upper on October 7th, November 16th and December 19th. 1946 :—One drake on Upper on January 11th, and on Lower on February 10th.

GOLDENEYE (*Bucephala c. clangula*). 1946 :—20—two adult drakes—on January 27th ; 97—eight adult drakes—counted, but there were almost certainly a few more on February 10th. Both records refer to the Lower area, none being seen on the others.

COMMON SCOTER (*Melanitta n. nigra*). Immature drake, March 14th, 1939.

GOOSANDER (*Mergus m. merganser*). Two, brown-headed birds, on Middle on January 10th, 1941.

RED-BREASTED MERGANSER (*Mergus serrator*). Two, brown-headed birds, on Lower, on December 29th, 1940.

SMEW (*Mergus albellus*). 1946 :—15—two adult drakes—on January 27th ; 39—three adult drakes—on February 10th ; 27—two adult drakes—on March 3rd. All were seen on the Lower area.

CORMORANT (*Phalacrocorax c. carbo*). 1939 :—One immature on April 7th and 19th. This species is now extraordinarily numerous at the reservoir, as the following records show :—1946, January 27th, 38 counted on the wing at once, leaving the Lower area for the estuary ; February 10th, 78 counted resting on the island ; 124 counted on the island, on March 3rd, and there were others fishing on Lower and Middle areas.

GREAT CRESTED GREBE (*Podiceps c. cristatus*). 1939 :—One on March 20th ; a pair on April 4th ; a pair persistently chasing a single bird on April 6th ; three pairs on May 7th ; one grebe sitting on nest on May 25th ; eight on May 26th, when two other nests were found partly built, and one of these contained eggs on May 31st ; on June 4th, five present—two on nests, two behaving as a pair and one single bird ; on June 8th, 12 grebes but only one nest occupied and a Carrion Crow was investigating one of the others ; two with two young on July 17th ; when last visited on August 19th, the two young were three-quarters grown and besides their parents one other adult was present. 1940 :—May 4th, 16 on Lower, and at least eight on Upper. Observed on most subsequent visits, but no complete count undertaken ; the most noted was 33 on February 10th, 1946, for the whole reservoir, but there were almost certainly more.

SLAVONIAN GREBE (*Podiceps auritus*). One on Middle, January 11th, 1946.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*). Two on Upper on October 7th, 1945.

LITTLE GREBE (*Podiceps r. ruficollis*). 1939 :—One on April 6th ; five or six pairs on May 26th and June 8th, and subsequently well established.

RED-THROATED DIVER (*Colymbus stellatus*). One badly oiled on Lower on February 10th, 1946.

COMMON SANDPIPER (*Actitis hypoleucos*). 1939 :—One on May 3rd ; two on August 19th.

GREEN SANDPIPER (*Tringa ochropus*). One on Upper, January 23rd, 1942.

REDSHANK (*Tringa totanus*). A few pairs bred in the valley of the Layer Brook before the reservoir was constructed. 1939 :—Three on March 30th ; present on subsequent visits and two or three pairs probably nested.

SPOTTED REDSHANK (*Tringa erythropus*). One in summer plumage at Upper on May 1st, 1940.

GREENSHANK (*Tringa nebularia*). Two on August 19th, 1939.

COOT (*Fulica a. atra*). 1939 :—Seven on March 14th and present subsequently on all visits in fluctuating numbers with 15 on March 31st ; decrease during April, but 18 at least on May 3rd ; nesting on May 26th ; on June 8th a great increase ; at least 50 present, but only one young bird. From this date onwards, abundant at the reservoir.

NOTES.

LITTLE BUNTING IN EAST SUSSEX.

At Pett Level on September 29th, 1946, there was a heavy morning mist which began to lift at 10 a.m., B.S.T., revealing many small birds flying along the marsh parallel to the coast, which here runs north-east and south-west. Most of these birds flew straight on, but a few alighted by the beach road, which is separated from the marsh by a dyke and from the beach by an embankment. Amongst these birds were either one or two Little Buntings (*Emberiza pusilla*).

One of these birds was seen for a few seconds on a gravel heap and lost when disturbed, but either the same bird or another of the same species was found on the next gravel heap, where it stayed a little longer before flying away with the other buntings.

My attention was first attracted to it by the warm brown patch on the face separated by a light streak above the eye from a cap of the same colour shading darker towards the edges. The bird was facing me and in that position appeared slightly smaller than Linnets, distinctly smaller than Yellow Buntings (*Emberiza citrinella*), its nearest neighbours. Its breast had rather small dark markings more numerous on the flanks and upper breast, showing clearly as if etched on the lightish-grey ground colour. As it flew away, a glimpse was caught of a duller-brown back with black markings and white outer tail-feathers. A. Denby Wilkinson.

RICHARD'S PIPIT IN KENT.

On September 27th, 1946, I had some good views of a single Richard's Pipit (*Anthus r. richardi*) on an East Kent Marsh. The bird was easily identified, and struck me as being a very large pipit with long yellowish legs, and long hind claws. There was a marked whitish eyestripe. The head and back were very dark, with almost black mottling, but all the feathers had light narrow margins. The tail was long and had white outer tail-feathers. The upper breast was streaked with dark spots, but the remainder of the under-parts was a uniform buffy-white.

The bird was also seen by my father. There are only four authentic records of Richard's Pipit from Kent, all in the autumn, and the last over forty years ago. Jeffery Harrison.

SINGING OF JUVENILE TREE-PIPIT.

On July 3rd, 1946, near Dover, I found a pair of Tree-Pipits (*Anthus t. trivialis*) with four young birds which I estimated after careful observation to be approximately 12 days out of the nest. Three of the young were being fed at the time of observation by the parent birds. The remaining young bird nearby was giving almost the complete song of this species, but quietly and in the tone of a subsong.

Observation was at a distance of 20 yards and covered a period of 30 minutes. These young were the second brood of this pair of Tree-Pipits. G. E. TOOK.

RED-BREASTED FLYCATCHER IN WESTMORLAND.

AS *The Handbook* makes no mention of the Red-breasted Flycatcher (*Muscicapa p. parva*) having been seen in Westmorland the following notes may be of interest.

On September 10th, 1946, in a wood on the south-east side of Loughrigg Fell, near Ambleside, Westmorland, I saw what was evidently a male of the species. The bird, which was perched on the branch of a tree, appeared smaller than a Robin, and the upper-parts seemed darker than those of that bird. The breast was red, the rest of the under-parts buffish, and the white on either side of the base of the tail was plainly visible, especially when the bird jerked this appendage slightly, which it did several times. I did not see the tail cocked over the back. The call, which was only heard once, was harsh, rather like the scolding note of a Wren.

BARBARA J. BIRD.

BARRED WARBLERS ON SCOTTISH MAINLAND.

ON September 5th, 1946, after a short spell of easterly wind, we went out to the East Neuk of Fife to see if any migrants had arrived there. In the whins we found two Barred Warblers (*Sylvia nisoria*), as well as some Whitethroats and a Lesser Whitethroat. We had good views of the birds, neither of which showed barring, being evidently young ones. We have often seen Barred Warblers on the Isle of May in autumn. This is the first time the Barred Warbler has been recorded from the mainland of Scotland, all the previous Scottish records being from islands.

EVELYN V. BAXTER AND LEONORA JEFFREY RINTOUL.

ABOUT August 10th, 1946, a bird was found by a friend of mine, Miss E. M. Murray, entangled in a strawberry net, in a garden in a district of Edinburgh close to the Firth of Forth. It was removed with some difficulty, examined in the hand, and released apparently none the worse for its experience. The main characteristics noted were that it was a largish warbler, distinctly grey in colour, with barred markings on its chest and a most noticeable staring yellow eye. It seems clear that it was an adult Barred Warbler (*Sylvia nisoria*).

Unfortunately no ornithological authority was consulted at the time, but I am satisfied that the description given can be relied on. C. K. MYLNE.

"ANTING" BY BLACKBIRD.

ON June 16th, 1946, from a window of my house at Southampton I observed a male Blackbird (*Turdus m. merula*) in the middle of a small clump of alpine pink growing between some flag-stones bordering a pond. As its movements were identical with those I have seen from time to time when Starlings (*Sturnus v. vulgaris*) have been " anting " in the adjacent rockery, I obtained my 8 x 30 prismatic binoculars and for at least two minutes watched the bird frequently picking up something and inserting its bill rapidly through the feathers of its wings, breast, flanks, under-parts and tail, at the same time with jerky movements turning round and round and in so doing almost sitting on its tail. After it flew away I went to the spot and found a mound of fine earth in the middle of the alpine pink alive with black (or garden) ants.

Again, on September 8th, 1946, I watched an immature male Blackbird on the edge of my lawn (also bordering my pond) turning and twisting itself round and round and as it did so picking up what appeared through my binoculars to be small objects and hurriedly passing its bill through various parts of its plumage. The bird spent two or three minutes doing this and then started digging at the ground and feeding with very snatching movements. During this latter performance it lifted up its head, opened wide its bill and ejected a large seed. I investigated the spot immediately with a powerful magnifying glass and found both black and yellow ants moving about in a distracted manner in the wet grass.

It had not occurred to me that "anting" by Starlings had received such scant recording as stated in *British Birds*, Vol. xxxix, p. 84 ; otherwise I would have reported my first observation made some years ago. R. E. WILLIAMS.

BLACKBIRD REARING FOUR BROODS FROM SAME NEST.

I SHOULD like to add the following instance to that recorded by Mr. D. A. Taylor (*antea*, Vol. xxxix, p. 343).

In 1938 a pair of Blackbirds (*Turdus m. merula*) built a nest on my house at Kenton, Middlesex, and reared four broods, viz.:—4, 4, 3 and 3.

The nest was precariously balanced in the bend of a 5-inch circular rain-water pipe, immediately beneath the eaves, at a height of roughly 14 feet. Construction took several weeks, as the nesting material fell off the pipe as soon as the nest began to take shape. One end of the pipe, however, rested against the rough-cast wall and eventually the nest was completed. It was an untidy affair, containing sufficient material to fill a medium-sized bucket, and as the material fell off almost daily, so it was replaced. The nest therefore was continuously under repair. One each of the young died in the third and fourth broods and the remaining twelve birds were successfully reared. The first two broods were strong healthy birds and the last two broods noticeably less vigorous. This I put down to the prolonged dry weather, the hardness of the ground and the consequent difficulty of obtaining food for the young.

During a period of nearly 5 months from March to early in August, I doubt if there were more than half-a-dozen occasions when I found the nest unattended.

Notwithstanding this strenuous effort, both the parent birds maintained a spruce condition, particularly the hen, and there was no sign whatever that they had developed the dishevelled and mangy appearance that I have so frequently noticed in the Blackbirds in Kew Gardens. W. BAGGALEY.

UNUSUAL NESTING SITE OF WREN.

ON July 7th, 1946, I was shown the nest of a Wren (*Troglodytes t. troglodytes*) built on a ledge beneath a portable iron saw bench about four feet square, in which was a small circular saw. The saw was in continuous use daily from about 9.0 a.m. to 5.0 p.m., and was belt-driven by a noisy motor engine a few feet away. The teeth of the saw were about six to eight inches from the nest. The nest was built and some eggs laid when the bench was moved to another spot in the wood, 40 yards away : one egg fell out on to some sawdust, but was replaced. The birds followed the bench and reared their young, which were 7-8 days old when I saw the nest. They fledged safely a few days later. H. R. TUTT.

SWIFT MIGRATION IN EAST KENT IN JULY, 1946.

A NOTE on this subject by Dr. Norman Joy from Dungeness (*antea*, Vol. xxxix, p. 54) and further observations by Mr. G. L. Sandeman from Spurn Point, Yorkshire (Vol. xxxix, p. 191), has prompted this note.

From July 10-13th, 1946, the wind was E.S.E. and very few Swifts (*Apus a. apus*) were seen in Thanet, but some started to collect there on the 13th, and numbers increased rapidly on the 14th, when the wind changed to the west and heavy rain set in.

The first big migration took place shortly after dawn on July 15th. From 6 a.m. until shortly after 7 a.m. about twelve hundred birds passed over a narrow strip of land near Sandwich Bay, all flying due southward, very low, facing a fresh south-west wind. On an average, 97 birds passed every five minutes. On returning to Thanet at 8.15 a.m., I found that there were very few Swifts left, and that a few were making their way westwards along the north Kent coast, also facing into the wind.

From these observations it became clear that Thanet formed a collecting ground for these migrant Swifts and the problem was to decide where they came from. The wind continued in varying force from the south-west almost without exception until the end of the month, but it was not until July 20th that another big migration took place, although small numbers had been moving through westwards and southwards almost continually.

On July 20th, a big migration started in the afternoon, and by watching from the cliffs between Cliftonville and Kingsgate, I was able to watch the Swifts coming in from the sea from the north-east into the south-west wind. Through field-glasses it was possible to see them as far out as the East Margate Buoy. On reaching the coast, most turned westwards along it. These observations were confirmed frequently throughout the rest of July, as migration continued every day.

These observations raise several points and serve to confirm others. It is impossible to say where these Swifts have come from, but if they had flown direct, then north-west Europe would appear to be their area of origin, but further correlated observation could do much to clarify this.

These observations support those of Dr. Joy at Dungeness on the migration of Swifts into the wind.

It is possible to distinguish migrating from non-migrating Swifts. Those on migration generally fly low, and have a slower, steady and more purposeful flight than their normal one.

These observations were confirmed by my father, Dr. J. M. Harrison. The migrating birds were all adults, as far as could be ascertained, presumably being unsuccessful or non-breeding birds.

JEFFERY HARRISON.

SONG OF KINGFISHER.

As the song of the Kingfisher (*Alcedo atthis ispida*) is seldom heard, the following observation may be of interest.

When watching birds by the Tamar Lake, on the borders of Cornwall and Devon near Bude, in August, 1946, my attention was attracted by some soft pipings not more than two yards away. These were followed by a few more whistles and then a most delicious warble, clear and lucid, yet rich and expressive ; then more whistles and another warble—a prolonged one this time.

I crept along cautiously to investigate and found that the sounds came from a Kingfisher perched on an overhanging bough, which had previously been hidden from view.

The Handbook says "Song (infrequent) described as 'a sweet trilling . . . , a modulated repetition of many whistles' (Coward), but W. M. Marsden and A. van Beneden record a version which was 'much more rapturous, varied and emulative,' than this suggests." The latter accords with my experience, one not easily forgotten.

F. E. CARTER.

PECULIAR BEHAVIOUR OF GREEN WOODPECKER.

AT about mid-day on August 15th, 1946, on the lawn at Hazelhurst, Sway, Hants, my sister, Mrs. H. S. Taylor, and my nephew, Richard Taylor, watched two Green Woodpeckers (*Picus viridis pluvius*) behaving in a manner similar to that recorded by Dr. Winifrede M. Fish (*antea*, Vol. xxxvii, pp. 96-97) and by my wife, Jean Cohen (*antea*, Vol. xxxviii, p. 356), but with certain differences. In the first place, the two birds concerned were both thought to be juveniles and neither uttered any sound. For rather over a minute both birds, about six inches to a foot apart, stood face to face turning their heads from side to side in a horizontol plane and rhythmically describing an arc exactly as described by Dr. Fish, finishing by one approaching the other, when they touched beaks without, however, either seeming to put anything into the other's beak. They then flew off without appearing to have noticed the observers. I might add that Green Woodpeckers reared a brood of young in our woods in 1946, which flew about June 23rd.

EDWIN COHEN.

UNRECORDED NOTE OF GREEN WOODPECKER.

WITH reference to the notes under the above heading (*antea*, Vol. xxxix, p. 248) may I add my own observations ?

The Green Woodpecker (*Picus viridis pluvius*) is common in Heath Wood, Whipsnade, and many may be seen feeding on the small heath opposite the wood. The note Edwin Cohen describes and which the editor states has been previously unrecorded, I have heard more than once ; in fact I would not put it in a very rare category at all. My observations are not based on a few visits to the locality. From April to September I lived next to the wood, and was always on the spot. The note represented (very imperfectly) in my mind the sound made by a small rusty gate in the distance. Mr. Cohen's description is much more apt.

K. E. L. SIMMONS.

GREAT SPOTTED WOODPECKER TAKING YOUNG BLUE TIT FROM NESTING-BOX.

WITH reference to the short note (*antea*, Vol. xxxix, p. 288) on a Great Spotted Woodpecker (*Dryobates major anglicus*) attacking a nesting-box containing young Blue Tits (*Parus cæruleus obscurus*), I can record a case in which at least one young and probably the entire brood was actually taken.

On May 22nd, 1945, at Hazelhurst, Sway, Hants, my wife, my sister and I watched a male Great Spotted Woodpecker attack a nesting-box on top of a pole 17 yards from the window ; the box contained a brood of about 4-5 days old Blue Tits ; the woodpecker hammered vigorously at the hole until it was able to extract one young, with which it flew off ; the parent Blue Tits flew around in distress and once one of them actually struck the woodpecker, but without causing it to desist. The wood was very soft, and large chips flew off ; when I looked inside I found the young tits almost covered with a layer of chips, which I removed ; after a little hesitation the parents continued to feed them, despite the now absurdly large entrance-hole. The woodpecker did not return that evening, but was seen at the hole subsequently. I had to leave the district on the 23rd and on my return on June 16th there were no dead young in the nest, which had obviously not been occupied up to the normal fledging period, so it seems likely that the woodpecker had taken them all.

In 1946 the hole was patched up and Blue Tits again used the box, but were not molested although Great Spotted Woodpeckers were still present and breeding.

EDWIN COHEN.

BUZZARD AND GOSHAWK NESTING IN PROXIMITY.

During the spring of 1946 I was able to make week-end visits to two large forests in Western Germany where I was stationed at that time.

I was anxious to see the Goshawk (*Accipiter g. gentilis*) at the nest. Intensive search of a considerable area of forest by myself and three foresters produced one nest in the vicinity of a village called Sögel on April 15th. The nest was in a Scots pine (*Pinus silvestris*) about 45 feet from the ground and 18 feet from the top. At this date it contained one egg and when revisited on April 25th it had three.

Immediately after finding this nest I was surprised to find the nest of a Buzzard (*Buteo b. buteo*) within 200 yards of that of the Goshawk. This nest was also in a pine at approximately 30 feet from the ground and 11 feet from the top ; it also contained one egg.

I thought it curious to find the nests of these two species so close together in view of so much forest being otherwise untenanted. I might not have attached any significance to this, however, had not a similar situation been encountered again ten days later in a different forest some miles away.

On April 26th I was searching a tract of forest near the village of Vries in company with two foresters. A nest of the Goshawk was located in a pine at approximately 27 feet from the ground and at the top of the tree ; it contained three eggs. Then in a matter of half an hour two Buzzard nests were found, one within 300 yards of that of the Goshawk and another at about 500 yards. The distance between the two Buzzard nests was almost half a mile. Both Buzzard nests were in pines ; they were 33 feet and 47 feet from the ground, and contained three and two eggs respectively.

A large area of forest contained no other nesting pairs of either species as far as it was possible to ascertain by a fairly intensive search on this and the subsequent day. The parts of both forests where all the nests were located did not seem to have any features differing from the rest of their respective vicinities, nor had the individual trees in which the nests were sited any visible difference from others around them. This nesting in proximity seems curious in view of the known intolerance of these species of competition in the nesting area. James Taylor.

FULMAR PETRELS IN THE PENNINES.

At about midday on July 14th, 1946, I was walking up Great Whernside from Kettlewell, near Skipton, Yorkshire, on the edge of a steep-sided valley, when I saw a Fulmar Petrel (*Fulmarus g. glacialis*) flying below. The flight was definitely petrel-like, consisting of a few flaps and long glides with the characteristic tilting. The wings were long and narrow without black tips, and the colouring of the upper surface was more barred brownish-grey than the grey of a gull, darker towards the tips. The tail-feathers were grey with white tips, and a darkish line separated the grey from the white.

Tubular nostrils could not be seen, though the beak looked short and thick. Two birds were identified as Fulmars at a range of 50 yards from above, and eight more similar birds were seen in the distance. I have observed Fulmars before when visiting Skomer Is., Pembrokeshire. T. B. BAGENAL.

[The locality referred to is extraordinarily far inland to be visited by Fulmars, at any rate in the British Isles. It is approximately 34 miles due east of Morecambe Bay and about 47 miles south-west of Tees Mouth. It may be noted, however, that birds have been seen in winter near Bingley at the same order of distance from the west coast and even further from the east (*Yorks. Nat. Union Committee for Ornithology Report for* 1945 and cf. *antea*, p. 63) and are now breeding as much as six miles from the open sea in Northumberland (*Orn. Report for Northumberland and Durham for* 1945).—EDS.]

DISPLAY OF BLACK-THROATED DIVER.

As little seems to be recorded about displays of the Black-throated Diver (*Colymbus a. arcticus*), the following observations made in Sutherland in August, 1946, may be of interest.

There were four divers on the loch when the observations were made and as far as I could judge all were adults. One bird, while calling excitedly, rose up erect, as if standing on the water, which it thrashed with its wings. Its head was held high with the beak pointing upwards. A second bird, presumably its mate, swam around, with neck outstretched, sometimes very low in the water, while the other two, with heads and necks in normal position, looked on. Then the first bird gave a loud squeak and splash-dived ; the second one did the same and the other two followed suit. They came up considerable distances apart and did not come close together again. This concluded what was presumably a form of post-nuptial display. J. MURRAY THOMSON.

CURLEW FLOCKING INLAND BEFORE MIGRATION.

ON August 27th, 1946, I watched a flock of Curlew (*Numenius a. arquata*) feeding on a marshy field at Malham Tarn, in the West Riding of Yorkshire.

On being disturbed they circled round in a huge flock, estimated by means of careful counts of portions of it at about 2,000 birds, and then returned to their feeding.

The birds from a very wide area indeed must have gathered together to form such a huge flock, which appears to be quite unusual inland. W. WILSON.

RED-NECKED PHALAROPE IN SUSSEX.

ON September 6th, 1946, my wife and I were able to observe for over an hour a Red-necked Phalarope (*Phalaropus lobatus*) swimming on a pool at the Crumbles, Eastbourne. The bird allowed a near approach and observation through 8 x binoculars showed that it had a dark grey back, broken up by white streaks down the middle. These white streaks were noticeable in flight, when the wings appeared very dark with a narrow white bar. The bill was black, slender and pointed. The head was white except for the dark nape and a black patch about the eye. The general appearance corresponded with the adult winter plumage described in *The Handbook.*

J. Walpole-Bond, in *A History of Sussex Birds* (1938) gives only ten occasions since the beginning of the present century when the Red-necked Phalarope has been recorded in Sussex, the last of these being in 1925. I am not aware of any subsequent record. No doubt the present bird arrived as a result of the strong south-westerly gales which had been raging during the preceding week.

D. D. HARBER.

PARTIES OF KNOTS IN CAMBRIDGESHIRE AND NORTHAMPTONSHIRE.

THERE has been an exceptional number of Knots (*Calidris c. canutus*) on the Cambridge Sewage Farm in the early autumn of 1946. On August 29th, I visited the sewage farm with Mr. A. S. Thom and saw two Knots ; Mr. Thom saw a single bird on September 1st. On September 5th none were seen, but Mr. J. M. Wallace and I saw seven there on September 9th and no less than thirteen on September 14th. There seem to have been at least three distinct parties on passage.

The Handbook states (Vol. iv, p. 228) that there is "no recent record of more than five inland, except for one highly exceptional record of ten (Nov.)." Since this publication Edwards has recorded other instances of exceptionally large numbers inland in Yorkshire (*antea*, Vol. xxxviii, pp. 197-8). ARTHUR J. BULL.

[Mr. R. A. Hinde, of the Cambridge Bird Club, informs us that two Knots were also seen on the sewage farm by Mr. R. D. Keynes on September 6th.—EDS.]

AS parties of Knots (*Calidris c. canutus*) are exceptional inland except in one or two favoured areas, such as Nottingham Sewage Farm (*antea*, Vol. xxxviii, pp. 197, 314), I should like to record that on September 18th, 1946, I discovered nine of this species at Northampton Sewage Farm. All except one were in the grey and white dress of winter, while the last was in the final stages of transitional plumage. The birds were very wary and I was unable to approach within 50 yards before they rose and flew to another feeding-patch. They were silent on the whole, but the "knut" note was quite often heard. I saw them from time to time during the day but in the evening they disappeared.

I. J. FERGUSON LEES.

CONTINENTAL REDSHANK IN NORFOLK.

ON August 13th, 1946, an adult male Continental Redshank (*Tringa t. totanus*) was obtained on the Wash, off North Wootton, Norfolk.

The bird is still in very striking full summer plumage and matches birds from Northern Europe in my father's collection. He has also confirmed the identification. The wing measures 150 mm.

This is only the fourth time that this race has been identified in Britain ; the others were all on spring migration. It is also the first record from Norfolk. JEFFERY HARRISON.

ICELAND REDSHANK IN KENT.

PREVIOUSLY in these pages I have recorded instances of *Tringa totanus robusta* in the British Isles. Most of these refer to the winter and this form has been noted from Lincolnshire, Norfolk, Suffolk, Sussex and Kent. That these are mostly winter records is significant. Spring occurrences are far less frequent, while the autumn examples provide no little interest in connexion with the question of migration and moult.

On September 4th, 1946, I shot an adult female on a North Kent marsh still wearing much of the summer dress, and with wings and tail in the process of moulting. It is generally believed that birds are averse to migrating when moulting the flight-feathers, and the late Mrs. Meinertzhagen (Miss Annie C. Jackson, *antea*, Vol. xi, p.198) expressed the opinion that examples of waders taken on migration with active wing moult are very rare, and that this stage of the moult takes place in the bird's winter-quarters. The present example has the first and second old functional primaries in each wing; the third is still in quill and much abbreviated. The wing measurement taken whilst fresh was, despite very considerable wear, 169 mm. General body moult is present and also moult of the wing-coverts. In this connexion of migration and moult it is perhaps permissible to refer once again to the example recorded by me from Rye Harbour, Sussex, on September 19th, 1934. This example is a moulting juvenile female with a wing of 170 mm. A further full juvenile, also a female, with a wing of 172 mm. was obtained by me on August 17th, 1946, on an East Kent marsh. The regularity and abundance of winter occurrences, and the presence of these moulting individuals suggests very strongly that the British Isles may well be the northern limit of the winter quarters of this subspecies (see also *Handbook of British Birds*, Vol. iv, p. 331). I have collected many of this race; indeed I have made a point of doing so, as the distribution within the British Isles seemed of much interest. These birds are sometimes recognizable on size in the field, and I have always been very impressed with the heavier and more fleshy-looking tarsi and feet when freshly shot, quite a diagnostic point in the field when compared with the mainland Continental and British races.

An extensive study of this species (*Ibis*, 1944, pp.493-503) has demonstrated the fact that Scottish breeding birds approach in wing measurement the Icelandic form, and it is therefore necessary to regard winter birds with wings of certainly up to 164 mm. as possible intermediates. There are, nevertheless, a sufficiency of the extremely long-winged birds to indicate a regular winter prevalence on our east and south-east coasts and to support the suggestion that this area is part of the winter-quarters of *Tringa totanus robusta,* while the adult and juvenile moulting material obtained in autumn seems to confirm this idea. JAMES M. HARRISON.

EXCEPTIONAL PASSAGE OF BLACK TERNS IN 1946.

The following records are additional to those previously published (*antea,* pp. 24-26).

SURREY.—Six at Hedgecourt Pond, near Felbridge, May 12th, 13th and 14th (F. M. Gurteen).

LEICESTERSHIRE AND RUTLAND.—Numbers quite exceptional. Blackbrook Reservoir: two, May 3rd (J. A. Jackson). Eye Valley Reservoir: five, May 3rd; three, May 5th; twenty, May 11th; five, May 20th; two, May 27th; three, June 30th (H. R. Colman, P. A. Stevens, Uppingham School Ornithological Society, H. Sothwell). Sawley Pits: thirteen, May 9th; two, May 12th; one, May 13th (T. A. M. Hill, M. P. Winser). Swithland Reservoir: nine, May 10th; one, May 25th (A. Todd, D. Felstead). Saddington Reservoir: four, May 12th (H. Bradshaw, K. Culbert). Records supplied by Leicestershire and Rutland Ornithological Society *per* F. A. Bak.

LEICS.-NORTHANTS.—Fifteen at Stanford Reservoir, May 11th (R. F. Chatfield).

CHESHIRE. One, Marbury Mere, May 11th (A. W. Boyd).

LANCASHIRE. Three at flash to the east of Manchester, April 28th (L. L. Turner) and 30th (A. Palmer). Pennington Flash, Leigh: one, May 6th; six, May 10th; thirteen to seventeen, May 11th; twenty-five to thirty, May 13th (F. R. Horrocks and A. R. Sumerfield).

BLACK TERNS IN CO. MAYO.

ON September 2nd, 1946, I had two Black Terns (*Chlidonias n. niger*) under observation, using binoculars, for over an hour on Lough Carra, Co. Mayo.

The birds frequently came to within 20 yards and I was easily able to see the shallow forked tail, black cap and nape, white forehead and dark bill. The dark markings on each side of the white breast were most noticeable, thus excluding the possibility that the birds were White-winged Black Terns (*Chlidonias leucopterus*). Under the conditions of light it was not possible to be certain whether the birds were adults in winter plumage or juveniles.

On the following day three birds were present and were seen by Messrs. John and Ivan and Miss Goodbody, who confirmed my observations, though owing to worse weather conditions it was again impossible to be certain whether the birds were juvenile or not. None was seen after September 3rd. The Black Tern is a rare vagrant in Ireland. ROBERT F. RUTTLEDGE.

PROBABLE SCANDINAVIAN HERRING-GULL IN ORKNEY.

WHEN aboard the S.S. "St. Ola" in Stromness Harbour, Orkney, on August 14th, 1946, I was watching a number of Herring-Gulls (*Larus argentatus*) by the ship's side and was immediately struck by one which was of a definitely darker shade on the mantle. On inspection both with binoculars and with the naked eye at close quarters—sometimes as close as 3-4 feet—I perceived that it had yellow legs. The bill was definitely of a brighter yellow than those of the others and the generally more intense colouring made the bird quite conspicuous amongst its companions. I have therefore no hesitation in reporting it as a Scandinavian Herring-Gull (*Larus argentatus omissus*). I do not think I could possibly have had a better view of it and I watched it for approximately ten minutes as it circled round alongside the ship, sometimes alighting on the water, but very active in dashing for any offal which appeared.

I notice that *The Handbook* says that the rather darker shade of the mantle is "insufficient to be relied on in the field," but I may say that this was the feature which first attracted my attention and led to my looking for the yellow legs. K. A. WOOD.

[The probability is almost overwhelming that the yellow-legged and dark-mantled bird so satisfactorily observed and described by Lieut. Wood *was* an example of the Scandinavian race, but it must not be overlooked that there are other similarly coloured races not at present on the British List which cannot be positively excluded. —EDS.]

BILL COLOUR OF HERON IN BREEDING-SEASON.—We should like to repeat the request made in the spring of 1946 to all readers with access to heronries in low trees or otherwise favourable for close observation to make a careful search for any individual Herons (*Ardea c. cinerea*) showing a red or reddish colouring of the bill or legs, and to send exact particulars to the Editor of any such. Such colouring may be only transitory, persisting for a short period only, and we should particularly welcome any observations on this point. The earlier request has brought in some scattered records of birds showing this coloration, but more systematic data on its occurrence and frequency are much needed. For further particulars see *antea*, Vol. xxxviii, pp. 149-150, and xxxix, p. 128.

RECOVERY OF MARKED BIRDS.—*Correction*. Under this heading, *antea*, Vol. xxxix, pp. 365-370 the following corrections should be made. Teal, 901829 : for " Ylitorkio " read " Ylitornio." Gannet, 126174 : for " Iles de Gléhaus " read " Iles de Glénans." Lapwing, 224464 : for " Fallaght " read " Tallaght."

Miss Leach also asks us to state that war-time restrictions on the ringing of certain species of birds are now relaxed.

REVIEWS.

Somerset Archæological and Natural History Society. Ornithological Section. Report on Somerset Birds, 1945.

Photographs of the Blagdon, Barrow and Cheddar Reservoirs, from which many records come, are a pleasant feature of this report. Duck have received special attention and their numbers are recorded in considerable detail; a flock of 300 Pintails at Durleigh reservoir in Central Somerset during a gale was of unusual size for an inland water. Among the more notable records are those of Rose-coloured Starling, Snowy Owl, Kite and Sandwich Tern which have already been noted in *British Birds*, and of an immature White-tailed Eagle shot at Steart on December 1st. The presence of a pair of Montagu's Harriers on Exmoor during summer, the continued breeding of Buzzards in several localities outside their stronghold in West Somerset and an increase in the nesting Curlew in the Sedgemoor area are also noteworthy.

A record of Iceland Gull is quite properly enclosed in square brackets and several other records for which certainty is not claimed might well have been treated in the same way, particularly those of Marsh-Harrier (" almost certainly thought to be this species ") and of a Hen-Harrier's nest which the Vice-President of the Society himself calls in doubt. A second record of a Kite (*Milvus m. milvus*), quoted from *Country Life*, seems to us worthless. " In appearance and flight it was identical with the Black Kite " is the only evidence provided. On this evidence it should surely have been recorded as a Black Kite or not at all! It seems unwise to include under the heading of British Redshank records referring to February, October and December; it would have been better to omit sub-specific rank altogether.

A.W.B.

Report of the Oxford Ornithological Society on the Birds of Oxfordshire, Berkshire and Buckinghamshire for 1945. Edited by Miss K. Price (Holywell Press, Oxford).

This carefully compiled report contains much of interest. A note on the status of the Wryneck in the Maidenhead district and its continued nesting in old orchards is particularly interesting, as it supports the belief that its reduction in numbers in many parts is due to the eradication of old fruit trees and the consequent destruction of nesting-sites. The Wood-Lark has continued to spread as a nesting bird and a flock of no fewer than 19 was seen in the Oxford district in November. Hobbies nested again near Oxford and Buzzards were seen a number of times in each county. Observers in the Eton district have been specially active and have recorded at Ham two Black-winged Stilts (*British Birds*, xxxviii, p. 337), four Spoonbills on May 19th, and many waders. Sewage farms at Slough and Sandford also were well watched; at the former a Spotted Crake was seen on September 12th. Wood Sandpipers were noted in all three counties. A Chaffinch marked in Holland in October, 1938, was recovered at Wantage in winter some three years later.

A.W.B.

Ornithological Notes, Bristol District, 1945. By H. H. Davis. (*Proc. Bristol Naturalists' Soc.*, Vol. xxvii, pp. 79-92).

THE Bristol district for the purpose of these notes is defined as covering "a considerable portion of both South Gloucestershire and North Somerset," the limit of the Gloucestershire section being a line drawn from the New Grounds at Slimbridge on the Severn to Tetbury. The notes for North Somerset duplicate those in the *Report on Somerset Birds* and the more important of them are referred to by us in the notice of that publication, so that we shall here confine ourselves to the Gloucestershire data. The greater part of these consist of observations on the geese at the New Grounds and on waders and waterfowl there and at Severn Beach.

The important discovery of two Lesser White-fronted Geese on the New Grounds has already been fully recorded in *British Birds*. Seven Barnacle Geese, apparently the largest number yet recorded for the Severn area, were present in January and February. A male Black Redstart was seen and heard on buildings adjoining the bombed area of Wine Street, Bristol, on June 12th, but not subsequently.

The observers responsible for the notes are indicated collectively in the introduction, but not individually in the systematic part. In the case of the

Somerset notes this does not particularly matter, because, as above noted, the information is available elsewhere, but at least in the case of the Gloucestershire part we think the omission a mistake. We know that a large proportion of the observations are those of the writer of the report himself, but where they are not we suggest that the person responsible should be indicated by means of initials in the usual way ; a record without the observer's name is incomplete.

Bryanston School Natural History Society. Report for 1945.

The interesting Bryanston School Report is printed this year. The local notes in the bird section refer largely to Poole Harbour and the Dorset heaths and downs. Dartford Warblers were seen regularly, but Montagu's Harriers appear to have been absent from their usual haunt. 128 Black-tailed Godwits were counted at Swineham Point on Poole Harbour on October 28th. and there are records of Great Grey Shrike, Gadwall, Hen-Harrier and other interesting species. We note that the Ferruginous Duck recorded in *British Birds* (*antea*, Vol. xxxix, p. 298) as present on the Stour near Blandford from January 4th to 24th re-appeared on February 16th and 17th.

Report of the Marlborough College Natural History Society for the year 1945.

In the bird section, we note that Cirl Buntings have established themselves in Marlborough at several places, that two or more birds which were almost certainly Snow-Buntings were seen in the neighbourhood in November and December and as many as ten Short-eared Owls together in October. There are records of various more or less uncommon visitors, such as Bittern (unfortunately shot), Gadwall, Scaup-Duck and Smew.

Annual Report of the Oundle School Natural History Society, 1946.

This report appears, as in previous years, to cover the period from the summer term of one year (viz. 1945) to the Lent term of the next, though this is nowhere made clear in the notes and may easily lead to confusion, since although the records are mainly for 1945, those for January to March are for 1946.

The section on birds includes some particulars of a census of Corn-Buntings organized by Mr. R. E. Burton, in which members assisted, counts at the local heronries, and some notes from the Ecton (Northampton) Sewage Farm and the Eye Valley Reservoir, where a number of interesting birds were observed, especially 100 Pintails on January 13th and 14 Brent Geese during severe weather on March 2nd-3rd (presumably 1946 in both cases). The record of a Ferruginous Duck has appeared in *British Birds* already. Curlew did not breed in the Barnwell meadows, where there was a nest in 1944.

LETTER.

BIRDS OF THE NORTH KENT MARSHES.

To the Editors of BRITISH BIRDS.

SIRS,—We are preparing an account of the birds of the North Kent Marshes from Gravesend to Swalecliffe, taking as our southern boundary the railway from Gravesend to Rochester, thence the main road to Herne Bay, via Brenley Corner.

We shall be grateful for any notes on birds in this area, especially on the direction of migration, the status of the commoner species in relation to the fresh marshes and saltings, breeding and the movements of ducks, waders and terns with reference to wind and tide.

In view of Dr. Harrison's intention to write a new history of the birds of Kent (*antea*, Vol. xxxix, p. 384) we think it well to mention that we were working on our project before the war and that we hope to issue an account for the North Kent Marshes before his book is complete in order that our own summary may be taken into account in the more comprehensive work. Dr. Harrison has expressed his agreement with this course and with the present appeal for information.

Notes should be sent to R. C. Homes at the address below.

E. H. GILLHAM, R. C. HOMES.

Mount Cottage, Meadvale, Redhill, Surrey.

NOTICE TO CONTRIBUTORS.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species : thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals.] The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full : thus "*Parus m. major*," but "*Parus major newtoni.*"

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and boldly drawn in Indian ink, with due allowance for reduction when necessary.

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THE BREEDING OF THE MOUSTACHED WARBLER IN CAMBRIDGESHIRE

BY

R. A. HINDE AND A. S. THOM.

THE first recorded breeding of the Moustached Warbler (*Lusciniola melanopogon*) in the British Isles occurred in Cambridgeshire in 1946.

On August 3rd, 1946, D. E. Sergeant and R. A. H. noticed an unfamiliar warbler in a sallow bush on the edge of a large reed-bed. Only a few short views of the bird were obtained, but it was seen to have a very dark crown and a very conspicuous white superciliary stripe. After a few minutes it flew out over the reed-bed and did not return within the half hour for which the watchers were able to remain.

On the morning of August 4th both birds of the pair were watched for two hours by C. C. Rose, A.S.T. and R.A.H. They spent most of their time in the reed-bed, but brought food at frequent intervals to a very thick bramble hedge about ten yards from the water's edge. The area between the brambles and the water was thickly carpeted with Coltsfoot, and contained two sallow bushes and a wild rose bush in which the adult birds alighted on their way to the bramble. As they did so, clear views were obtained at a range of less than ten yards. The most conspicuous feature was the superciliary stripe, which, starting from the base of the bill, where it was off-white in colour, became pure white and broadened considerably as it curved over the eye and came to a square finish at the side of the nape. The appearance of this stripe was made even more startling by the almost black crown and the very dark stripe through the eye. This, together with the contrast between the dark chestnut-brown back and white under-parts gave the birds a much more striking appearance than any warbler with which the observers were familiar. Although the two adult birds were clearly very similar, close inspection revealed small differences, and one (which was assumed for purposes of reference to be the female and is referred to as such throughout this paper, although of course no direct proof of sex exists) was seen to have a superciliary stripe which was just off-white throughout. The differences between the two adult birds were such as could easily have been caused by abrasion.

As they perched in the bushes the birds called with a soft but penetrating "t-trrt, t-trrt, t-trrt," which all observers agreed was less harsh than and readily distinguishable from that of the Sedge-Warbler (*Acrocephalus schœnobænus*). Each syllable was uttered separately. When the birds were approached too closely they called with a rather harsher "t-chik", which was repeated rapidly with the syllables sometimes run together.

The adults brought food to the bramble at intervals which seldom exceeded two or three minutes. The two birds always used different approach paths, the male approaching on every occasion by a sallow bush opposite the centre of the bramble and the female by a rose bush some eight yards distant. Thus they entered the bramble at two separate points, which were several yards apart, and it seemed from the very dense nature of the hedge and the very short time which the birds spent in it that the two adults must be feeding young birds which were some distance apart in the hedge and which must therefore have been already out of the nest.

During the afternoon of August 4th the birds were again watched by R.A.H. for several hours. Further details of the plumage were noted (a full description compounded from those of all who watched them is given at the end of this paper). On one occasion the female was seen at the same time as a Sedge-Warbler in the field of the glasses. The crown was very much darker than the Sedge-Warbler's, the superciliary stripe larger, whiter and more conspicuous and the back and mantle more rufous. It was quite clear to this observer that the birds were not Sedge-Warblers. Later the male bird, which had just entered the hedge with food, was heard to give the alarm "t-chik, t-chik" very loudly and persistently. A few seconds later this bird was seen near the top of the hedge displaying vigorously with vibrating, half-raised wings and fanned tail. The tail was seen spread for only a few seconds, but was clearly rounded. After about two minutes of continuous calling the male bird left the hedge, and the observer went up to investigate. A young bird was found near the top of the hedge. This bird was in general similar to the adults, but the forehead, crown and nape were a very dark brown and the mantle was lighter than the adults. The superciliary stripe was the same shape as those of the adults, coming to a square finish near the nape, but was very slightly cream in tone. The young bird flew to the top of the hedge, where it perched for about a minute, and then flew down the hedge for over ten yards. This bird gave the impression of being able to fly several yards with ease, but a bird seen by A.S.T. at dusk on August 7th appeared to have very limited powers of flight. On August 8th, however, A.S.T. saw three young birds, two of which were quite strong on the wing, though the third could only fly short distances.

The observations made up to this point seemed to correspond only with the Moustached Warbler (*Lusciniola melanopogon*), but in view of the fact that this species had only been recorded once before in the British Isles, the conclusion that a pair was actually breeding appeared fantastic. To establish the identity of such an obviously difficult bird two courses were possible—to obtain a specimen, which was decided against, or to invite as many expert ornithologists as possible to give their opinion.

On the morning of August 5th, Dr. and Mrs. W. H. Thorpe, the Rev. E. A. Armstrong and Dr. R. W. Butler came to see the birds. All had excellent views, as the birds at this time were reasonably tame and it was possible to watch them from five or ten yards range as they perched in the bushes. All rapidly formed the opinion that these birds were of a species with which they were unfamiliar, and all noticed the characteristics of crown, superciliary stripe and mantle which have been mentioned above. Both Dr. and Mrs. Thorpe remarked independently that the birds were like a warbler with a Whinchat's head, and Dr. Thorpe also emphasized the "dark cheeks and pure white throat and lower cheeks, which gave quite as sharp a contrast as in the Lesser Whitethroat." Skins of both Moustached and Sedge-Warblers and the appropriate volume of Dresser were brought into the field. All were agreed that the birds had much darker crowns, very much whiter and more conspicuous superciliary stripes and more chestnutty mantles than had any of the Sedge-Warbler skins which were available, and that the birds appeared to correspond with the Moustached Warbler, although it seemed so exceedingly unlikely that this species should be nesting in the British Isles.

During the remainder of the day the adults continued to feed the young at intervals of about two minutes for periods of ten minutes to an hour, followed by breaks of ten to thirty minutes when they disappeared over the reed-bed.

The territory seemed to be bounded by the bramble hedge on the west side, by clumps of willow on the north and south sides, and to extend over the reed-bed to the east. On the far side of the bramble hedge was another large area of shallow water without reeds, but the birds were never seen to fly in this direction. Invasion of this area by Reed-Warblers (*Acrocephalus s. scirpaceus*) and Garden-Warblers (*Sylvia borin*) produced on several occasions on this and subsequent days a display consisting of fanned tail and spread wings accompanied by the harsh, rapidly repeated "t-chik, t-chik." Sedge-Warblers, on the other hand, though seen in the area on only two occasions, were ignored. At 20.10 hours occasional high sweet notes were heard from a bird believed to be preparing to roost. When it was almost dark one of the birds was disturbed from one of the sallow bushes near the border of the reed-bed.

On the morning of August 6th, Prof. C. E. Raven and Dr. W. H. Mills watched the birds. Prof. Raven stated that though he had formed the definite expectation of seeing nothing but very strongly marked Sedge-Warblers, he was "entirely convinced that the bird was not *Acrocephalus schœnobænus*. Its very dark crown and blackish moustache contrasted with the white eyestripe and white throat. The deep red-brown of the back looked much darker than a Sedge-Warbler . . . Its note, heard several times, seemed less harsh and shrill." Dr. Mills also noticed the conspicuous features noted by the previous observers and described above and commented "It was certainly a warbler which I have never seen before."

Later in the day James Fisher watched the birds, and in his field description emphasized the very dark crown and the very prominent superciliary stripe, which he described as not quite white but very pronounced. He also emphasized the rufous flanks.

Up to this time the weather had been fine, with at most 4/10th cloud, and little wind. During the rest of the period during which the birds were under observation, however, the weather deteriorated somewhat, and with the increasing wind the birds, which had previously come out into the open freely, tended to skulk under the leaves of the coltsfoot. The plumage of the adults, which had seemed to be in good condition before, seemed to deteriorate in the heavy rain which fell. A watch was kept on them for at least several hours every day. Although the young were seen to catch flies for themselves from at least August 7th onwards, the adults continued to feed them as frequently as they had done previously. The young became even more spread out than they had been before, and spent more of their time in the coltsfoot than in the bramble.

The only occasion on which any approach to a song was heard was at 05.32 hours on August 6th. The male was in one of the sallow bushes when a Reed-Warbler appeared in a neighbouring bush. The bird gave one sweet fairly high note followed by lower notes not unlike the normal call, and then chased the Reed-Warbler, displaying as described above. It then returned to its original bush and gave three of the high notes followed by the low notes as before, thus "Trt, trt, trt, rdl, rdl, rdl." Both of the adult birds, when flying for short distances seemed to carry the tail in a rather elevated position, and on several occasions they cocked the tail to an almost vertical position, especially when excited. A slight cocking of the tail was an invariable accompaniment to the uttering of the alarm note.

On August 9th, Dr. H. B. Cott and Dr. E. A. R. Ennion watched the birds. Dr. Cott stated that they differed from Sedge-Warblers in the superciliary stripe, which was "whiter, broadened out behind the eye, extended for a considerable distance behind the eye and came to an abrupt finish." Dr. Ennion stated in his field description that the upper-parts were darker and redder than a Sedge-Warbler, and that the "superciliary stripe was very much whiter and broader than any Sedge-Warbler that I have ever seen, contrasting so strongly with the blackish forehead and crown border above, and with the dark brown cheeks plus ear-coverts below, that it was strongly suggestive of a cock Whinchat ; it did not taper towards the nape as in a normal Sedge-Warbler, but ended bluntly . . . ."

On August 10th, James Fisher and J. A. Gibb watched the birds. J. A. Gibb have previously observed the Moustached

Warbler in Malta and had a very clear description of the single bird which he had seen there which emphasized the very broad white superciliary stripe broadening behind the eye, the black forehead and almost black crown, the white chin and throat and the rich dark chestnut brown of the back and wings. He was satisfied that the Cambridgeshire bird was identical with the Malta bird in all these particulars, and stated that "I feel justified in maintaining the identity of the Cambridgeshire birds as *Lusciniola melanopogon* in default of any other species with major characteristics identical with those of the Malta bird."

A. Darlington also watched the birds on several days and made a long and careful description of them in the field. This description agreed in all points with those made by previous observers, and A.D. stated that "I am myself satisfied that these birds are not Sedge-Warblers in any condition."

The birds were watched for several hours every day until August 20th, which was the last day on which they were seen.

The facts of the case had been reported by Dr. Thorpe to Mr. B. W. Tucker, who is familiar with Moustached Warblers in Southern Europe, but unfortunately Mr. Tucker was on holiday in Scotland. On his return he immediately came over to Cambridge and spent part of the afternoon of August 26th and the morning of August 27th watching the territory and searching the reeds and likely spots in the vicinity in the hope of finding the birds, but without success.

The complete evidence in the form of the individual descriptions of each observer, together with the paintings made by Dr. Butler, Dr. Ennion and A.S.T., was submitted to Mr. Tucker. After a detailed analysis he replied that although Dr. Butler's account stood somewhat apart in being distinctly more suggestive of Sedge-Warblers than any of the others, "the evidence as a whole, and even the two or three fullest and most careful descriptions taken individually, seem to make the conclusion almost inescapable that the birds were Moustached Warblers"; but he pointed out the desirability of making a search for the nest. This seemed particularly important in view of the fact that the parents had first been seen feeding young, evidently recently fledged, amongst brambles some yards from the nearest water. This might have been held to suggest that the young had come from a nest in those brambles rather than in the reed-bed and so to constitute a weak point in the evidence, since all accounts show that the Moustached Warbler normally always breeds over water. It was therefore obviously important not only to search the neighbouring parts of the reed-beds, so far as possible, but also to determine what nests, if any, there were in the brambles or adjacent vegetation. Accordingly a careful search was made of the whole area, including the brambles, the sallows, willows, coltsfoot, and the reed-bed up to a distance of about five yards from the shore. All the bushes which were too thick to be properly covered thoroughly otherwise were cut down.

It is quite certain that there was no nest in the bramble or anywhere in the vicinity that could possibly have been that of a Sedge-Warbler (as being the only other species with which a Moustached Warbler could possibly be confused) and this taken with the evidence given above that the young were already out of the nest when the birds were first seen, seems to make it probable that the nest was in some inaccessible part of the reed-bed.

The following is a description of the birds compounded from those of the various observers :

ASSUMED MALE.—Forehead, crown and nape very dark brown, almost black, darkest in front and at sides, with a thin warm brown longitudinal line along each side of centre of head. Mantle and scapulars darkish chestnut brown, with four dark brown or black longitudinal lines through mantle, well defined from nape, but continuity becoming lost in posterior area. Back, rump and upper tail-coverts, rufous. Very conspicuous superciliary stripe starting from nostrils, where it was off-white, becoming pure white and broadening as it curved over and behind the eye to finish abruptly and squarely near edge of nape. Very dark brown stripe passing from gape through and under the eye, continuing behind the eye to the ear-coverts. Ear-coverts dark brown, becoming dull brown on the sides of the throat. Chin, throat and breast white, with chin and throat conspicuously so. Breast becoming suffused buffish posteriorly. Flanks reddish-buff, becoming more intense in posterior area. Tail feathers brownish-black with indistinct, badly worn lighter margins. Primaries and secondaries black-brown with yellow-buff margins. Greater and median coverts as secondaries. Lesser coverts brown with dark centres. Bill dull brown ; gape vivid orange ; legs straw-brown ; iris brown.

ASSUMED FEMALE.—Like male, but crown and nape slightly less black. Superciliary stripe off-white throughout. Mantle a slightly colder brown. Flanks and under tail-coverts, rather less rufous and more light warm brown in colour. Bill as male but lighter at base.

JUVENILE.—Like adults. Forehead, crown and nape very dark brown with longitudinal less dark streaks. Superciliary stripe the same as in adults, but slightly cream in tone. Mantle rather lighter than adults. Feathers of wing-coverts with dark brown centres. Under-parts faintly suffused pale buff, with faint reddish-brown on posterior region of flanks. Bill nearly white

It was impossible to identify with certainty the food which the adults brought to the young. The latter were most frequently fed with small Diptera, but the adults were also often seen carrying adult Odonata, Coleoptera and caterpillars (probably Lepidoptera). On two occasions an adult was seen carrying a white moth, one of which was identified as a Gold-tail Moth (*Euproctis chrysorrhoea=similis*) and once a greyish Tettagonid grasshopper.

In the above résumé of observations and opinions an endeavour has been made to include all that is pertinent for the establishment of the identification. That the birds were not Sedge-Warblers is clearly established : that they were Moustached Warblers seems inescapable.

In conclusion we would like to thank the observers quoted and in addition J. R. Simister and John Wallace.

[The breeding in England of this Mediterranean bird, the nearest part of whose normal range is the South of France and whose sole previous claim to a place in the British List rested on a single occurrence, is an event so extraordinary as to seem at first sight scarcely credible. The evidence in support of the identification is, however, so complete that no other conclusion appears possible. It may be permissible to observe that this evidence comprises the testimony of highly critical and trained minds of men like Prof. Raven and Dr. Thorpe, as well as of experienced amateur ornithologists, one of whom had actual experience of the Moustached Warbler, and that the identification was supported by an actual comparison of skins with the living birds. As stated by the authors, I have had at my disposal the complete notes of the dozen different observers who watched the birds and the series of coloured drawings prepared by Drs. Butler and Ennion and Mr. Thom. I have made the most thorough comparison and analysis of all this material, having before me a series of skins of Moustached and Sedge-Warblers as I did so and, I may say, with the added advantage of familiarity with the former species in Italy, and I entirely concur in the authors' conclusions. A point which deserves emphasis, apart from the plumage characters, is the cocking of the tail, which was noted by two or three of the observers. This is highly characteristic of Moustached Warblers and is an action which is not in my experience normally employed by Sedge-Warblers at all.

It is hoped to issue with a later number a reproduction of one of Dr. Ennion's coloured drawings. This was originally prepared and coloured, with the assistance of notes taken in the field, immediately after watching the birds. The striking coloration of the head is entirely unaltered, but it should be stated that the shades of colouring of mantle and tail-feathers have been modified somewhat to meet criticisms by Messrs. Hinde and Thom, who, it must be remembered, saw far more of the birds. I may add that Mr. Thom's own drawings, though not laying claim to quite the artistic skill of Dr. Ennion's, are in some ways more cogent as evidence, since they were based on sketches actually made and coloured in the field (which I have also seen) and were compared again with the birds after completion. They strongly support the identification. —B.W.T.]

UNUSUAL SPRING PASSAGE OF MIGRANTS IN S. LANCASHIRE AND N. CHESHIRE.

BY

A. W. BOYD.

THE spring of 1946 was marked by the unusual number of waders and other migrants which visited inland waters in S. Lancs. and N. Ches. between mid-April and mid-May. This period coincided with a spell of dry weather (no rain fell between April 28th and May 16th), which by reducing the water-level of the "flashes" (coal-mining subsidences) exposed suitable feeding-ground for waders. A strong easterly wind which prevailed throughout these weeks may have held back migratory birds. The wind during the peak of this migration—May 8th to 10th—was north-easterly. But, as R. H. Dunt has pointed out, on some days many birds remained for only a short time and the numbers and actual species fluctuated considerably in the course of a few hours.

Messrs. R. H. Dunt and A. Palmer are responsible for most of these records. They visited a flash to the west of Manchester daily, almost without exception, from the end of April to mid-May. Mr. L. L. Turner has supplied notes from this flash and from a sewage farm in the same area ; as the flash and the sewage farm are so close together and as birds habitually go from one to the other they are treated as one in the notes that follow. Messrs. T. Edmondson, F. R. Horrocks, A. R. Sumerfield and I also visited this flash. The following notes all refer to this flash and sewage farm except where otherwise stated. Other notes refer to Pennington Flash, Leigh, Lancs. (T. E. and F.R.H.), Altrincham sewage farm, Cheshire (A.R.S.) and Marbury Mere, Northwich, Cheshire (A.W.B.). Where no initials are added the birds were seen by several observers.

SHELD-DUCK (*Tadorna tadorna*).—One, April 27th; at Leigh, one, March 30th, one, April 7th (F.R.H.).

GARGANEY (*Anas querquedula*).—A pair, April 28th to May 12th. On April 9th, one, Marbury (A.W.B.).

BAR-TAILED GODWIT (*Limosa l. lapponica*).—One, May 8th, 9th, 11th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—First seen (2) April 9th and then continuously till May 18th. On April 25th they numbered 22, and on May 7th, 24. From the different numbers in summer plumage seen on different days it was obvious that there was a continual change in individuals (R.H.D.). At Leigh, six on May 10th; three, May 11th; two, May 19th (F.R.H.).

RED-NECKED PHALAROPE (*Phalaropus lobatus*).—One on June 6th (T.E.) and one on June 13th (C. Milner). (T.E. saw one at Leigh on June 6th in 1941).

TURNSTONE (*Arenaria i. interpres*).—Several from May 8th to 12th Maximum six on the 9th.

DUNLIN (*Calidris alpina*).—April 13th to end of May, flocks of 10 to 34 (34 on May 10th) and three to six in first week of June. Also four at Leigh, April 21st (F.R.H.) and small numbers at Marbury, April 26th to May 19th (A.W.B.).

CURLEW-SANDPIPER (*Calidris testacea*).—Two on May 4th (L.L.T.)

LITTLE STINT (*Calidris minuta*).—Two, May 4th and 6th (L.L.T.).

SANDERLING (*Crocethia alba*).—One at Marbury, April 26th (A.W.B.); two, May 16th (R.H.D. and A.P.); one, June 6th (T.E. and F.R.H.).

RUFF (*Philomachus pugnax*).—Seven on April 8th (L.L.T.); two, April 22nd (T.E. and F.R.H.).

WOOD-SANDPIPER (*Tringa glareola*).—One, Altrincham, April 13th (A.R.S.); one, May 9th and 10th (R.H.D. and A.P.); one, June 6th and 7th (T.E. and F.R.H.).

SPOTTED REDSHANK (*Tringa erythropus*).—One, April 14th and two, May 11th (L.L.T.).

GREENSHANK (*Tringa nebularia*).—Several, from May 7th to 16th (5 on the 9th); four on May 30th (F.R.H.). Also one, Leigh, May 1st (F.R.H.), and one, Marbury, May 15th and 19th (A.W.B.).

RINGED PLOVER (*Charadrius hiaticula*).—Plentiful, May 8th to end of month (maximum 25-30 May 18th) and six to ten, first week of June.

LITTLE RINGED PLOVER (*Charadrius dubius curonicus*).—On May 9th, R.H.D. saw a ringed plover fly in from N. or N.E. and alight on the mud at some distance from a small flock of other Ringed Plover. When it flew the observer was positive that there was no wing bar. Its call note (written down on the spot) was "tee-u, tee-u". Unfortunately if flew off to the south before it could be approached closely. This occurrence is the first of this species recorded in Lancashire.

GREY PLOVER (*Squatarola squatarola*).—One, May 8th, 9th, and another (in different plumage) in the evening of May 9th (R.H.D. and others). One Marbury, May 10th and 11th (A.W.B.).

ARCTIC TERN (*Sterna macrura*).—One at Leigh, May 11th (A.R.S.).

BLACK TERN (*Chlidonias n. niger*).—Three, April 28th (L.L.T.) and 30th (A.P.). At Leigh, one, May 6th; six, May 10th; 13 to 17, May 11th; 25 to 30, May 13th (F.R.H. and A.R.S.). At Marbury, one, May 11th (A.W.B.) and three at Billinge Green (Ches.), May 11th (V. H. Richardson).

LITTLE TERN (*Sterna a. albifrons*).—Two, May 9th (A.W.B.).

LITTLE GULL (*Larus minutus*).—One in full plumage seen on the evening of May 9th (R.H.D. and A.P.).

REMARKABLE SPRING MIGRATION AT TRING RESERVOIRS

BY

W. E. GLEGG.

A PASSAGE of unusual nature, mainly composed of waders but also including terns, ducks and other species, was observed at these reservoirs from the last week of April to almost the end of May, 1946. It is impossible to consider this remarkable passage without associating it with the persistent N.E. wind, which prevailed during most of the period. From about May 17th the wind became more variable, but from the 24th to 26th it was again blowing steadily from N.E. Although the wind was strong and cold, yet it never seemed strong enough to interfere with the course of migrating birds. I feel that there must have been factors other than the wind to cause so many birds, representing at least 23 species, to appear at such a relatively limited area. It may be accepted that what was seen at Tring was merely an indication of a widespread movement, which must have covered a considerable part of at least the east of England. As is well known, the appearance of waders at these reservoirs depends on the availability of suitable mud, but during the period of this passage there was no such attraction, although Sand-Martins, ducks, terns and gulls would have a chance to find food. It may be that the birds were delayed by some influence or other and finding themselves behind time were forced to advance northwards in the teeth of an unfavourable wind and thus fatigued and in need of a greater supply of food were forced to make an unusual descent. If it is accepted that the birds which appeared at Tring were merely a sample of a wide movement the question arises whether the movement was unusual, resulting from abnormal influences, the nature of which is unknown, or whether such a passage is regular but in the main, in the absence of abnormal factors, remains unrevealed to us.

It is probable that these migrants were behind their time. Some of them certainly were. May 27th is a late date for Common Sandpipers to be moving northwards and the Whimbrel heard on May 29th were three or four weeks later than usual. In some instances it will be clear that the same birds had been seen more than once. It is safe to say that only two Gadwalls, four Knots, three Curlew-Sandpipers and one Grey Plover were observed. It is probable that at least three Bar-tailed Godwits, four Black-tailed Godwits, six Turnstones, four Sanderlings and eight Greenshanks were identified. In some instances the evidence shows that passage was maintained for a considerable period. The difference of the stages of plumage was remarkable. Dunlins, Knots, Curlew-Sandpipers, and Grey Plover appeared to be in full breeding plumage. Two Turnstones were in breeding dress and the plumage of two was not so advanced. One of the Bar-tailed Godwits was strikingly red, while the other two showed no signs of it. All the Sanderlings were in the plumage of winter.

Most of the birds were observed at Wilstone Reservoir and unless otherwise stated were identified by me. I have to thank Messrs. A. H. Bishop and R. Harkness (R.H.) and the London Natural History Society (L.N.H.S.) for permitting me to include their records.

SAND-MARTIN (*Riparia r. riparia*).—Wilstone Res., a particularly big passage which contained 1,100 birds, May 5th (R.H.).

HOBBY (*Falco s. subbuteo*).—Marsworth Res., two, May 5th (L.N.H.S.).

SHELD-DUCK (*Tadorna tadorna*).—Wilstone Res., two, May 25th (R.H.).

GADWALL (*Anas strepera*).—Wilstone Res., a male and a female, May 6th and 8th.

COMMON SCOTER (*Melanitta n. nigra*).—Wilstone Res., two females, April 30th.

BAR-TAILED GODWIT (*Limosa l. lapponica*).—Wilstone Res., one, May 2nd; two, May 8th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—Wilstone Res., two, April 26th; one, May 10th; one, May 12th (R.H.).

WHIMBREL (*Numenius ph. phæopus*).—Heard passing, May 29th.

TURNSTONE (*Arenaria i. interpres*).—Wilstone Res., one, April 28th (R.H.); one, May 4th; two, May 5th (L.N.H.S.) and 6th; one, May 8th; two, May 9th; and one, May 19th (R.H.).

KNOT (*Calidris c. canutus*).—Wilstone Res., four, May 8th; one, May 10th.

DUNLIN (*Calidris alpina*).—Wilstone Res., recorded from April 28th to May 19th; largest number, eighteen, May 3rd.

CURLEW-SANDPIPER (*Calidris testacea*).—Wilstone Res., three, May 9th; one, May 10th.

LITTLE STINT (*Calidris minuta*).—Wilstone Res., one, May 3rd.

SANDERLING (*Crocethia alba*).—Wilstone Res., two, April 30th; one, May 3rd, 8th and 9th.

RUFF (*Philomachus pugnax*).—Wilstone Res., one, May 3rd; a male, May 10th.

COMMON SANDPIPER (*Actitis hypoleucos*).—Wilstone Res., recorded from May 6th to 27th; largest number six, May 9th.

GREENSHANK (*Tringa nebularia*).—Wilstone Res., recorded from April 30th to May 22nd; numbers, one to three.

RINGED PLOVER (*Charadrius h. hiaticula*).—Wilstone Res., six, May 9th; three, May 10th; two, May 12th and 19th (R.H.).

GREY PLOVER (*Squatarola squatarola*).—Wilstone Res., one, May 9th and 10th.

BLACK TERN (*Chlidonias n. niger*).—Recorded from May 2nd to 20th; 41, May 8th; 30, May 9th and 10th.

COMMON OR ARCTIC TERN (*Sterna h. hirundo* or *S. macrura*).—Recorded from May 4th, when there were 12, to May 25th. Some were identified as Common.

LITTLE TERN (*Sterna a. albifrons*).—One at Wilstone and one at Startops End Res., April 28th (R.H.).

LESSER BLACK-BACKED GULL (*Larus fuscus*).—Wilstone Res., one, May 10th; several, May 25th (R.H.).

During this movement many parties of Swifts (*Apus a. apus*) and Sand-Martins, also House-Martins (*Delichon u. urbica*) and Swallows (*Hirundo r. rustica*) in smaller numbers, which may have had some association with this passage, were observed.

THE LITTLE RINGED PLOVER IN THE LONDON AREA IN 1946

BY

E. R. PARRINDER.

In 1946, for the third successive year, Little Ringed Plovers (*Charadrius dubius curonicus*) were again present in the London area in the breeding-season. Members of the London Natural History Society kept watch on over one hundred gravel-pits in all parts of their area, but, as in previous years, the birds known to have stayed the summer were concentrated in a fairly small area of Middlesex. Four pairs were found, in three localities. This report is a very brief history of the three localities and has been compiled from notes supplied by the following observers, to whom my grateful thanks are due :—C. B. Ashby, Dr. G. Beven, T. Bispham, J. R. Crawford, N. W. Cusa, M. D. England, P. J. Hanson, R. W. Hayman, Dr. E. O. Höhn, R. C. Homes, Sir Cyril Hurcomb, D. A. T. Morgan, C. A. Norris, E. R. Parrinder, E. W. Pearce, E. G. Pedler, B. A. Richards, R. H. Ryall, W. G. Teagle, A. J. B. Thompson, C. A. White, J. S. Wightman.

Locality "A": The first observation at this locality was on May 4th, when three Little Ringed Plovers were seen at a small gravel-pit (E.W.P.). The odd bird apparently moved away, but on May 9th one of the pair was watched back to a nest containing four eggs and a cork (E.O.H., R.C.H., E.R.P.). The pit was being worked and the nest was on a patch of sand and shingle close to the machinery and less than ten yards from a frequently used road. On June 5th three recently hatched chicks were seen in or near the nest, which still contained one unhatched egg (E.O.H.). The next visit was eight days later, on June 13th, when the site was under observation most of the day, but no chicks were seen. Both adults were about, however, and display followed by coition was seen three or four times. The shingle patch was searched and another nest found, 13 feet from the first, containing one egg (E.O.H., E.R.P., E.W.P.). On June 16th the new nest held three eggs, and a fourth was laid on June 17th (E.O.H.). During the next three weeks E.W.P. and others made frequent visits to the site. They found the sexes easily distinguishable, as the female was apparently in first summer plumage and was a noticeably duller, browner and more ragged-looking bird than the male. The male did the major share of the incubation during daylight ; on one day during a seven hour watch the female only sat for two minutes and on another during six hours she did not incubate at all, although she approached the nest twice (M.D.E.). On July 7th a third bird appeared, was much chased by the male, and later flew off (M.D.E., E.W.P.). A third bird was seen again on July 10th and was again chased away (E.W.P.). The next day, July 11th, 24 days after the completion of the clutch, E.W.P. visited the nest at 9 a.m. and found it empty ; a few egg chippings were in and near the nest but there was no trace of chicks. Both adults were about and called excitedly. At 10.20 a.m., a third bird appeared, but was not chased away. The next day all three birds were present, but showed no anxiety, and no chicks were seen. No birds were seen on July 17th, but on July 21st one, thought to be the female, was feeding by the water. None was seen on subsequent visits.

It is unlikely that the young, from either the first or the second nests, could have survived without being seen and it must be assumed that they were taken by a predator. Carrion Crows (*Corvus c. corone*), Kestrels (*Falco t. tinnunculus*) and Sparrow-Hawks (*Accipiter n. nisus*) were all seen about the gravel-pit.

LOCALITY "B" : The Little Ringed Plover was first observed at this locality, another gravel-pit, on May 21st, when E.O.H. heard calls, but was unable to find the bird. His previous visit had been on April 30th, so the arrival date may have been considerably earlier than May 21st. On May 28th the same observer saw a single bird which seemed very anxious, frequently calling, "false-brooding," and half-opening its wings and jerking its tail in a manner reminiscent of "injury-feigning." On June 1st and on subsequent dates to the end of the month two birds were seen by a number of observers. On each occasion they were on an area of heavily rutted gravel at a little distance from the water, and they were always noisily anxious when approached ; the most frequent anxiety reaction was "false-brooding," but definite "injury-feigning" was observed on one occasion. The ruts made observation difficult and no nest was found. On June 30th N.W.C. saw a bird in juvenile plumage which may have been a bird of the year. It was capable of flight, but its behaviour was furtive in contrast to the agitated behaviour of the pair which he had seen earlier in the day, and it was silent except for a single note when flushed.

The last record from this locality was on July 26th, when two birds were seen.

LOCALITY "C" : The first appearance of Little Ringed Plovers in this locality was on May 4th, when two were identified at a sewage farm (C.H.). The next day two were seen two miles away by a river which had been recently dredged and the gravel piled in heaps along the banks (W.G.T.). Either one or two birds were seen at the same place by a number of people up to May 26th. About this date the heaps of shingle were levelled out and the rains brought the water level up to cover the muddy strands where the birds had fed. The next report was of two birds, on June 1st, on a nearby vast flat area of gravel with scattered pools (C.B.A., R.C.H., J.S.W.). This pair was subsequently watched by many observers, but no proof of breeding was obtained. On June 16th another pair was located at the other end of the same area ; they were very agitated and "false-brooding" was seen (as at LOCALITY "B" under similar conditions). Another Little Ringed Plover, thought to be a fifth bird, which came into their area, was chased away (C.H., C.A.N.). Subsequent observers confirmed the presence of two distinct pairs, but were unable to prove breeding. On weekdays the area was occupied by workmen and traversed by heavy vehicles and it seems likely that any attempt at nesting was disturbed. On June 30th five and on July 2nd six birds were seen in the air at one time (R.H.R. *et al.*). The last observation at this site was on July 7th, when four were seen (A.J.B.T.) ; on July 28th four were seen at the sewage farm where they had first appeared in May (C.H.).

SUMMARY.

Four pairs, at least, of Little Ringed Plovers stayed in the London area throughout the breeding-season. One pair is known to have nested, but the young from its two nests do not appear to have reached the flight stage. There is no conclusive evidence that the other three pairs reared young. The three localities were fairly close together and odd birds seen at each of them may have been wanderers from the known pairs rather than additional non-breeding birds.

WHITE-BILLED NORTHERN DIVER ON SHETLAND

BY

L. S. V. AND U. M. VENABLES AND B. W. TUCKER.

(Plate 11, fig. 2).

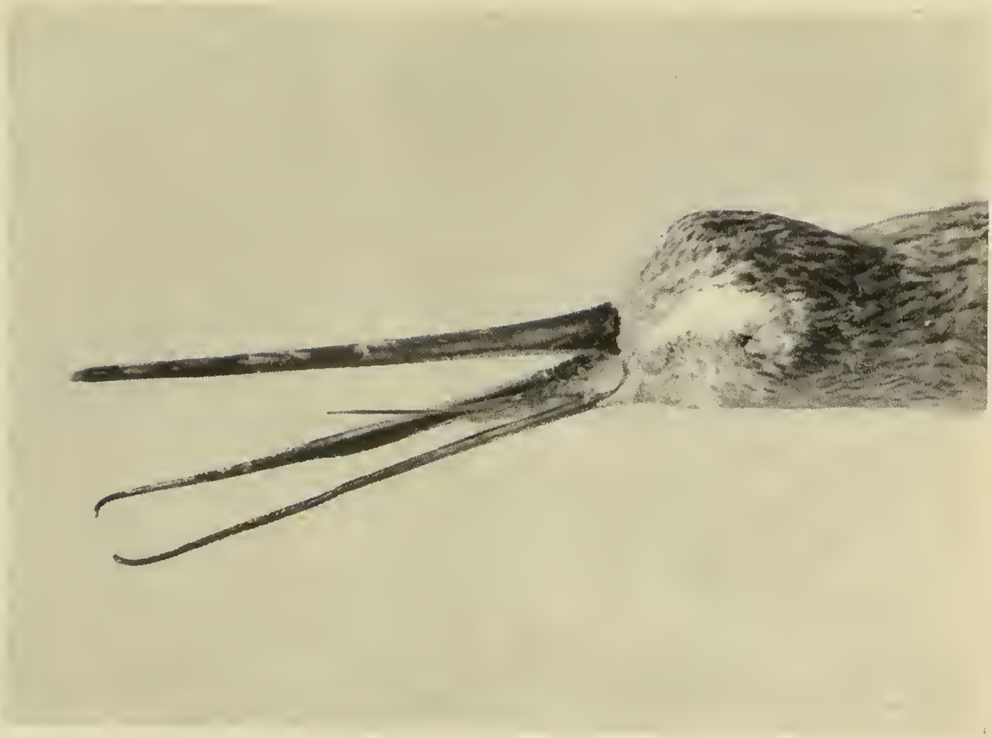
On January 21st, 1946, a dead White-billed Northern Diver (*Colymbus adamsii*) was found by the Venables washed up at the head of Whiteness Voe, Shetland. It was not possible to preserve the bird, but it was examined and measured on the spot and the skull was cleaned and sent to Tucker, who identified it. It is now deposited in the Oxford University Museum.

Only two definitely reliable records of this species for the British Isles are recorded in *The Handbook of British Birds* (Vol. iv, p. 118). (*cf.* also Witherby, *Brit. Birds*, Vol. xvi, pp. 9-12). The bird had been dead for several days and, though the cold weather had kept it fairly fresh, the colours of the soft parts may have changed. It was not sexed.

The mantle and scapulars showed a few big white spots, and there were rows of small white spots on the lesser, median and greater wing-coverts. The tail-feathers were tipped with various shades of smoke-grey and light grey-brown, instead of with white as in the adult. The combination of immature tail-feathers with some feathers of the breeding plumage on the upper-parts evidently indicates a bird in its second winter, since the adult breeding plumage is not assumed till the second year. Witherby states in *The Handbook* that in the Great Northern Diver (*Colymbus immer*), with which the species agrees closely in most respects, "the juvenile plumage is only partially moulted in December and January, many juvenile body feathers being retained, also all primaries and secondaries and most wing-coverts . . . sometimes whole tail, but often only part." The present bird, however, would appear to have retained the juvenile tail-feathers into January of the second winter, unless the new tail-feathers after the first post-juvenile moult are occasionally more or less like the juvenile ones and not invariably "as adult winter" (i.e. tipped white), as stated in *The Handbook*. An examination of a larger series than has been available to us (B.W.T.) would be necessary to throw light on this point.

The bill (see Plate 11, fig. 2) shows well the characteristics of *C. adamsii*, the almost straight outline of the upper mandible, the more pronounced gonys, and the flatter, less rounded sides of the upper mandible as compared with *C. immer*. The horny sheath was noted in the flesh as white, slightly tinged yellow, pale horn at upper base and slightly blue-tinged at lower base. At a distance it looked quite white : more so than does that in the photograph of the immature *Colymbus i. immer* in Coward, Vol. iii, p. 238.

The tarsi were dusky outside, and white, slightly tinged yellow, inside.



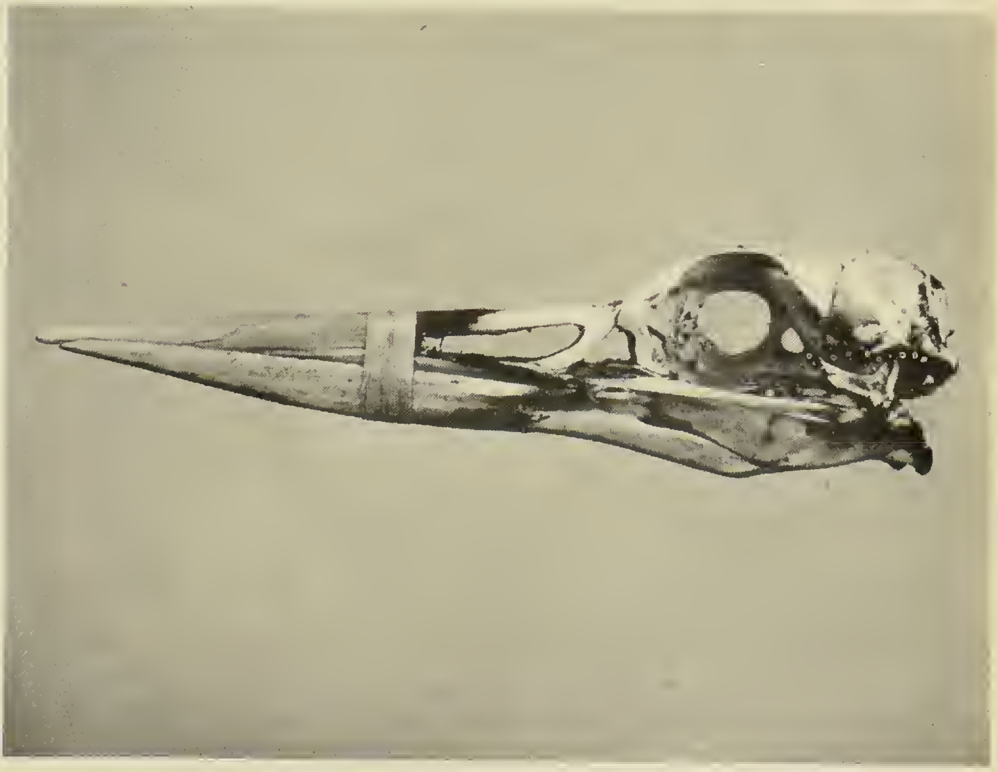


FIG. 1.—BAR-TAILED GODWIT (*Limosa l. lapponica*) WITH ABNORMAL BILL (see p. 120).

FIG. 2.—SKULL OF WHITE-BILLED NORTHERN DIVER (*Colymbus adamsii*) FROM SHETLAND, JANUARY 21ST, 1946. (see p. 112).

[illegible]

The following measurements were taken in the flesh :

Beak : front end of nostril (i.e. the hole, not the bevel) to tip of beak, 77 mm. The range given in *The Handbook* is 60-80 mm., as against 53-70 in *C. immer*. End of feathering to tip of beak, 96 mm.

Tarsus : 103 mm. [Probably this measurement was not taken strictly by *The Handbook* method, as the maximum *Handbook* figure is 96 mm., or 98 for *C. immer* (B.W.T.)]. Tarsus plus the longest toe stretched out flat : 213 mm.

Wing : 385 mm. *cf. Handbook*, 360-395 mm. 385 is the maximum measurement quoted for *immer*, except for one case (male) of 408 mm.

Wing tip to body : 63 cm.

Total span : 152.5 cm.

Tip of beak to tip of tail : 81.5 cm.

Tip of beak to tip of longest toe : 100.5 cm.

NOTES.

BEHAVIOUR OF YOUNG CARRION CROW WITH ANTS.

SINCE there seems to be little understood about the relationship between birds and ants, the following observations may be of interest. This summer (1946) I reared a young Carrion Crow (*Corvus c. corone*) from the nest. After about a week, but before it could properly fly, I placed it on the ground by a large slab of stone under which I knew ants would be found. As soon as I removed the stone, the crow displayed an immediate pronounced excitement. After a few seconds hesitation, he stepped into the middle of the swarming ants and, without actually picking any up, went through the motions of flicking them on to his back, as a bird flicks drops of water at the beginning of a bath.

When some of the ants found their way via his legs to his feathers, the bird showed apparent pleasure and slowly settled down among the ants like a brooding hen, with wings outspread and tail fanned. Then he dropped his head down in a swooning posture till his beak touched the ground.

He was soon covered with ants, though on his head he found them irritating and shook them off. I watched the ants as closely as possible thinking maybe they would attack the bird's "fleas," but all I noticed was that they seemed to attach themselves to the tips of feathers more than anywhere else, for what purpose I cannot say.

The chief interest of the incident seems to be in the fact that the bird, being little more than a nestling, could never have seen its parents "anting" and that its attraction to ants was therefore instinctive, not imitative.

Subsequently the bird showed just as much excitement at the sight of other ants' nests—I tried it with several species of ant—and sometimes he would lie flat among the insects, alternately putting ants on to his back with his beak and gobbling ants' "eggs" as fast as he could get them down ! W. CONDRY.

CARRION CROW KILLING WOOD-PIGEON.

I AM reliably informed of the following incident which occurred near Swindon, Wilts., on August 11th, 1946. A pair of Carrion Crows (*Corvus c. corone*) was seen to attack an adult Wood-Pigeon (*Columba p. palumbus*) in flight and subsequently kill it. One of the pair flew alongside the Wood-Pigeon, cawing loudly, while the other stooped at it, buffeting it with its wings and trying to peck at it. The pigeon was forced to the ground and there killed by the crows. My informant, Mr. Shickle, had the impression that the pigeon was not flying strongly when attacked. The Wood-Pigeon is not included in the list of food of the Carrion or Hooded Crows given in *The Handbook*. F. C. BROMLEY.

JACKDAWS HAWKING FLYING ANTS.

On September 25th, 1946, at 1.30 p.m., I saw seven or eight Jackdaws (*Corvus monedula spermologus*) hawking flying ants over Minehead, Somerset. The procedure was to rise at a steep angle into the air and then dive at the insects, often following them down to nearly roof-top level.

There was none of the dash and swerving flight usually associated with Jackdaws. In fact, the whole performance looked rather slow and clumsy, and was carried out almost silently, only an occasional "tchack" being heard. As I can find no reference in *The Handbook* to hawking by Jackdaws, the above seems worth putting on record in case other observers have seen similar occurrences. A. V. Cornish.

[Jackdaws have been recorded hawking after flying insects by Robert Service (*Zool.*, 1895, p. 381 and 1902, p. 219).—Eds.]

ROSE-COLOURED STARLING IN CORNWALL.

Motoring between Launceston and Liskeard, Cornwall, on August 24th, 1946, I noticed a brilliant pink and black bird about the size of a Starling (*Sturnus v. vulgaris*) ; the back, rump and breast were pink and the tail, wings and head were black. The bird had evidently been feeding on the road, but flew up into the woods at the side as the car approached ; being in a hurry we were unable to stop, but I have no doubt that the bird was a Rose-coloured Starling (*Pastor roseus*). P. S. Burns.

TWO DIFFERENT TYPES OF EGG LAID BY SAME CHAFFINCH.

Mr. H. C. Wood's interesting note (*antea*, Vol. xxxix, p. 342) on his having found two different types of egg laid by (apparently) the same Spotted Flycatcher (*Muscicapa s. striata*) and the Editor's subsequent remarks recalled a somewhat similar experience I had in 1943 with the Chaffinch (*Fringilla cœlebs gengleri*).

On April 17th, a Chaffinch's nest was found built on a ledge inside a derelict shed in an apple orchard. When inspected on April 20th it contained two eggs of the uncommon "bullfinch" type. Thereafter the nest was inspected daily and five eggs completed the clutch. The last three eggs however, showed slightly increasing tendency towards the normal type. Although the third and fourth retained their blueness of shell, the markings were a little smudgy, suffused and redder, whereas in the first two the markings were dark and distinct. The fifth egg approached very closely to normal type, the markings having become typical and a greenish tinge having appeared in the blue of the shell.

These eggs were taken on April 24th and a further visit to the shed on May 4th revealed a new nest built a few yards away from the previous one. This contained a clutch of five typical Chaffinch's eggs of a common pale-greenish type.

The instance quoted above is, of course, in reverse to that described by Mr. Woods; in his case the normal type of egg having been laid before the aberration. H. J. HOFFMAN.

[As regards the Spotted Flycatcher case it is perhaps desirable to repeat the caution which we expressed at the time, that the two clutches of eggs, so strikingly different from one another, may have been the product of different hens, although laid in the same nest, so that the case is not necessarily comparable with Mr. Hoffman's. —EDS.]

WOOD-LARK BREEDING IN GROWING CORN.

IN view of the fact that *The Handbook* does not mention growing corn as a regular nest-site of the Wood-Lark (*Lullula a. arborea*) it may be worth recording that in the Monk Okehampton district of Devon it is a regular habit of this species to nest in fields of young corn. There is no lack of what would usually be considered more normal Wood-Lark terrain, which in fact the birds frequent at other times of year, but they resort chiefly to the cornfields for nesting.

I might mention that on June 9th, 1946, I flushed a Wood-Lark out of thick corn nearly 18 inches high off a nest containing a clutch of five eggs, a number which is stated to be unusual.

R. G. GORDON.

CRESTED TITS IN NORTH BANFFSHIRE.

ON September 21st, 1946, I saw Crested Tits (*Parus cristatus scoticus*) in a wood at the foot of the Knock, a hill some seven miles south of Portsoy, Banffshire, and some thirty miles from Ballindalloch, given in *The Handbook of British Birds* as the lower limit of the species on Speyside. Identification was quite certain; I have watched Crested Tits in Rothiemurchus, and I managed to get within about four feet of one of the birds. They were associating with Coal-Tits, Goldcrests and Tree-Creepers and although I never saw more than one at the same time, I am convinced that there were several. P. J. SELLAR.

COURTSHIP FEEDING OF WOOD-WARBLER.

IN *The Handbook*, Vol. ii, p. 16, Jourdain states that the incubating Wood-Warbler (*Phylloscopus sibilatrix*) leaves the nest to feed and is rarely fed by the male. This species seems to come into the category suggested by Mr. B. W. Tucker (*antea*, Vol. xxxix, p. 89), in which the feeding of incubating or brooding females exceptionally occurs.

On June 11th, 1944, I visited a nest, built near a sycamore on the steep bank of a woodland, containing four young, about three days old. The female only was feeding the youngsters, the male contenting himself with perching near and singing the concluding trill of the song. Presently his mate went to the nest and brooded the young for 15 minutes. Mid-way through this period the male approached the nest with a small, green caterpillar in his bill and offered it to his partner, who promptly swallowed it.

No nest was built on this site in 1945, but in 1946 I found a pair building actually within 6 feet of the 1944 nest. The female was incubating a clutch of six eggs on June 6th, and during the afternoon I watched the male feed his sitting mate twice within five minutes ; small, green caterpillars again being the proffered food. As in the case of the 1944 bird, the male during the actual breeding period sang only the concluding trill of the song, a marked idiosyncrasy which suggests that he was possibly the identical male of the 1944 pair. CLIFFORD OAKES.

SONG-THRUSH "ANTING."

ON September 28th, 1946, I watched some Song-Thrushes (*Turdus e. ericetorum*) "anting."

It was a very mild day and there was a hatch-out of winged ants on a grassy terrace bank close to the house. I was watching from an upstairs window with binoculars. There were six or eight birds or more ; they were flying in and out from a hedge and it was difficult to be sure of numbers. The birds were pecking at the grass, and I could see that they were collecting ants ; some they appeared to eat, but frequently after collecting one or two, they preened under their wings and on their breasts, probing with the ants on their beaks. But I also noticed that some of the birds collected a number of ants on their beaks and did not preen. One in particular, that I watched for twenty minutes or longer, never preened at all, although it had a thick mass of ants on its beak. It spent most of the time standing with its full beak, gazing somewhat upwards. This bird was unfortunately disturbed by a passer-by and flew out of sight, so I do not know what it eventually did with the ants.

I went out, and saw that the winged ants were a small black species. KATHLEEN GOUGH.

NIGHTJAR NESTING AMONGST THICK COVER.

DURING the 1944 season I found nine nests of the Nightjar (*Caprimulgus e. europæus*) amongst the chestnut plantations of mid-Kent. Of these, no less than four were in very thick cover.

In the particular area worked, the local industry of cutting fencing-stakes from the sapling chestnuts clears wide areas every 15-20 years, making what appear to be ideal clearings for nesting Nightjars—the ground being strewn with stones, wood-chippings and shavings, odd pieces of wood, logs, etc. Not one nest, however, was found in an area that had been cleared during the last year or two, all the nests found being amongst trees of some years growth. Four of these were well in amongst closely-set plantations of some 10 feet in height, the trees being set only a few feet apart. Each pollarded root had its five or six shoots, thick with foliage, and all were intermingled as they spread outwards in growth. So dense were these plantations that one literally had to force one's way through whilst searching for the nests.

I do not think it is generally recognized that the Nightjar does, at times, nest in thick cover. Indeed, upon first impressions, the four areas concerned appeared quite unsuitable. H. J. HOFFMAN.

[So far as our experience goes, nesting in such sites as Mr. Hoffman describes is most unusual, or at any rate has very seldom been observed, and this is confirmed by the wide experience of Mr. J. Walpole-Bond, to whom we mentioned the point.—EDS.]

FERRUGINOUS DUCK IN SOMERSET.

ON September 15th, 1946, I visited Durleigh Reservoir, near Bridgwater, Somerset, with my friend Mr. R. C. Roe. At the shallow end and close inshore we noticed three small dark chestnut ducks with a few Coots. Taking cover behind a bank, we had an excellent view at about 40 yards range with the sun behind us. As soon as I raised my binoculars—8 x 30—I saw two of them had very white eyes and realized they were probably Ferruginous Duck (*Aythya n. nyroca*).

They dived frequently and were smaller than a few Pochard feeding some distance away. Mr. Roe was using 10x binoculars, and I wrote down the following description on the spot :—"Dark chestnut-brown head, back and tail. Flanks light chestnut. Under tail-coverts pure white, and white eye. Showing a white wing-patch when cleaning or flapping, but this not apparent when at rest." The third bird appeared duller and was evidently a female. When one of the drakes flew we noticed a broad white angular wing-bar and white under-parts, thus confirming our original identification. A. V. CORNISH.

[As we have had to remark on a number of previous occasions, the possibility of Ferruginous Ducks being "escapes" cannot, unfortunately be excluded.—EDS.]

ADULT DRAKE COMMON EIDER OFF KENT IN JULY.

TICEHURST (*A History of the Birds of Kent*, p. 369, 1909) gives seven or eight records of Common Eiders (*Somateria mollissima*) off the Kentish coast ; since this summarization a number of other occurrences have been recorded. Most of these are related to the late autumn or winter, the exceptions being a party of seven seen off the Isle of Sheppy on May 7th, 1937 (Sibson, Currie and Gibson, *antea*, Vol. xxxi, p. 59) and of a young male observed off Littlestone on August 1st, 1929, (Bedford, *antea*, Vol. xxiii, p. 164). In addition to the Kentish records there are a number from Sussex, from Rye to the extreme western limit of that county.

The present record refers to an adult drake which was seen off the coast between Cliftonville and Kingsgate between July 17th and 19th. This individual was in practically full eclipse dress, the only sign of its coming out of this plumage being some very obscured white on the breast shield. It was seen under good conditions at times fairly close inshore. The plumage was very dark, although it was possible to see that in the feathers of the mantle and also on the sides of the neck and cheeks there was considerable fading, these regions appearing chocolate to coffee-brown. The bill was seen to be a pale yellowish-green as were also the tarsi and feet, which were displayed to view as the bird tilted sideways in preening.

This would appear to be the first record of an eclipse drake off Kent, and the earliest record of its presence so far south.

JAMES M. HARRISON AND JEFFERY G. HARRISON.

EARLY NESTING OF CORMORANT.

As *The Handbook* gives the breeding-season of the Cormorant (*Phalacrocorax c. carbo*) as the latter half of April and early May in the southern part of the British Isles and (referring to Ireland on the authority of Ussher) exceptionally the beginning of April, the following note may be of interest.

On the Great Saltee Island, Co. Wexford, there were almost fully fledged juvenile Cormorants on April 19th, 1946. As some of these were able to flap away from the nest when disturbed, it seems safe to assume that they were at least three weeks old, the fledging period being given as over one month. The incubation period of the Cormorant is given as 28 days; hence it would appear that the eggs must have been laid on or about March 3rd, an exceptionally early date. IVAN M. GOODBODY.

AUTUMN DISPLAY OF LITTLE GREBE.

On August 25th, 1946, a pair of Little Grebes (*Podiceps r. ruficollis*) were swimming rather leisurely on Tamar Lake, near Bude, in the early afternoon; it was warm and sunny.

After some little time one bird rose up and flew across the lake for about fifty yards, then returned and settled down again. A moment later its partner did precisely the same thing, then both birds half rose in the water facing each other and touched bills. Settling down again they touched bills twice.

The behaviour seems to be an example of a revival of display behaviour in autumn. FLORENCE E. CARTER.

STOCK-DOVE ALIGHTING ON WATER.

On September 15th, 1946, while watching birds at Durleigh Reservoir, near Bridgwater, Somerset, with Mr. R. C. Roe, we were amazed to see a Stock-Dove (*Columba œnas*) fly out from a tree, circle over the water, and alight in the middle of the reservoir. It stayed there floating buoyantly for five or six seconds, then rose quite easily and flew back to the tree. As far as we could see it made no attempt to drink or bathe. On reference to *The Handbook* I find a similar occurrence has been recorded. A. V. CORNISH.

[There are quite a number of records of Wood-Pigeons alighting on water in the manner described, but in the case of the Stock-Dove we are only aware of the single record referred to in *The Handbook* (involving three birds), the reference to which is Barclay, *Brit. Birds*, Vol. xxix, p. 217.—EDS.]

MALFORMATION OF BILL OF BAR-TAILED GODWIT.

THE accompanying figure (plate 11, fig. 1) shows a remarkable and probably unique deformity of the bill of a Bar-tailed Godwit (*Limosa l. lapponica*) which was shot on a north Kent marsh, on September 23rd, 1944. The bird is an adult female and weighed but eight ounces, the normal weight being about twelve. The defect is a failure of fusion of the two rami of the lower mandible, while the extreme tips show some slight incurving.

It would seem that the condition must be in the nature of a congenital defect, for there does not seem anything to suggest an injury. It is of course quite obvious that most of the food this bird attempted to ingest must have dropped through the two separated rami, hence its condition of semi-starvation.

I have prepared the specimen to demonstrate the defect to the full. When in the flesh the two rami were rather more closely approximated, but still so far apart that its nourishment must have escaped it time and again.

I am indebted to Mr. T. C. Gregory for this specimen.

JAMES M. HARRISON.

CURLEW BREEDING IN NORTHAMPTONSHIRE.

IN 1944 and 1945, Curlew (*Numenius a. arquata*) were repeatedly seen during the breeding-season on the Northampton Sewage Farm or in the neighbouring riverside fields, and breeding was strongly suspected. In 1946 a pair was again present and was observed several times on the farm in May, June and July on a large and not very wet bed overgrown with persicaria and dock, with some admixture of coarse grass. There seemed some grounds for thinking that they might be nesting here rather than in the meadows, but a thorough search was not made for fear of attracting the attention of workmen collecting eggs for domestic use.

On July 7th the excited behaviour of the birds suggested that they had young on the ground and a workman who had noticed them reported that he had seen two long-legged birds which he thought were young Curlews scuttling in the grass the previous week. Later in the day I had a somewhat similar but inconclusive experience, but on August 10th I had a good and clear view of the parents and three young. The latter were now about three-quarters grown, about the size of Whimbrels, with short and only slightly curved bills. When approached the adults took wing, but the young ran to cover. They have been seen on various occasions since.

While the possibility cannot, perhaps, be excluded that the young were hatched on the neighbouring meadows and led by the parents on to the better feeding grounds on the farm, I personally feel convinced that the nest was actually on the weedy bed where the birds were seen, and in any case I think there can be no reasonable doubt that breeding took place in the immediate vicinity.

The record is the second for Northamptonshire, a previous case having been recorded by Mr. I. Hepburn (*antea*, Vol. xxxviii, p. 78).

R. E. BURTON.

CURLEW BREEDING IN NOTTINGHAMSHIRE.

DURING 1944 and 1945 a pair of Curlews (*Numenius a. arquata*) bred near Thrumpton, a village standing on the River Trent some seven miles south of Nottingham. The nests, which were inspected by several observers, were situated about 200 yards from the river in low lying hay fields. Young birds, two in each year, were brought off.

Though a pair of adults was again identified in the vicinity in the summer of 1946 they are not thought to have bred.

These instances of the breeding of Curlews in Nottinghamshire are the first on record.

M. L. R. ROMER.

RED-NECKED PHALAROPE IN NOTTINGHAMSHIRE.

ON August 24th, 1946, J. Staton, R. J. Raines and a junior observer were overlooking a pool on the Nottingham Sewage Farm on which was a varied assembly of waders and gulls, when a bird having the appearance of a tiny gull swam into view. It was at once seen to be a phalarope, and during the next half-hour detail was obtained which established it as a Red-necked Phalarope (*Phalaropus lobatus*). These details, for confirmation of which I am indebted to other observers named below, are :—Bill noticeably fine and black, a small amount of faint greyish-brown mottling on forehead, a very clear blackish mark round the eye continuing backwards and downwards over ear-coverts. Forepart of crown pure white, some indeterminate greyish-brown mottling on hind-crown and nape merging into more definite line down hind neck. Wings and back while at rest appeared brown with warm buff edges to mantle feathers and scapulars ; in flight a prominent white wing-bar near the trailing edge of secondaries and white showing either side of dark tail gave much the same pattern as Dunlin or Sanderling except that white streaks were apparent on the back between the open wings. Rest of head, neck, breast and underparts a clear pure white, except for faint trace of a reddish patch on the neck seen by two observers having particularly close views. Size was distinctly shorter than a Ringed Plover at one time closely adjacent, and a call frequently uttered was rendered as "tik," "zik," or "tit" of a sharp metallic nature. From the plumage detail the bird would seem to be an adult in transition plumage.

In addition to the above observers, and in their company, the bird was also seen on the same day, and/or the 25th and 28th by N. Harwood, D. A. T. Morgan, B. K. Montgomery and A. E. Jolley. Of these, D.A.T.M. has previous experience of Grey Phalarope for comparison.

J. STATON.

TEMMINCK'S STINT IN CHESHIRE.

FOR several days during September, 1946, a Temminck's Stint (*Calidris temminckii*) was present on the Altrincham Sewage Farm. This is the first authenticated occurrence of this species in Cheshire. There were, however, already in 1930 three recorded occurrences in the neighbouring county of Lancashire. The bird was first seen on September 5th by John Southern and the writer. It is known to have been present subsequently on September 6th, 9th, 10th and 11th and was seen at close quarters by, among a number of other observers, A. W. Boyd. On September 9th there is a probability, but no certainty, that three or four birds of this species were present at the farm.

The following is a description of the bird as seen through 6 x 30 binoculars in a good light at perhaps four yards distance with Little Stints (*C. minuta*) adjacent for comparison :—Head light grey-brown, with lighter (not white) superciliary mark; back, scapulars and wing-coverts darker grey-brown, near the colour of these parts of a Common Sandpiper (*Actitis hypoleucos*), with rather paler edgings to the feathers, presenting, however, even at close range, a very uniform appearance in striking contrast to the strongly patterned Little Stints; throat and upper breast shaded (rather than marked) grey-brown, more heavily at the sides and with a fairly sharp line of demarcation from the very white lower breast and belly (this is in clear contrast to the Little Stints, which had much white on throat and breast) ; bill black ; legs yellowish-brown (this colour, however, was only clearly perceptible at very favourable angles, the legs often appearing as dark against the sky-reflecting water surface as did those of the Little Stints, which, of course, were black). The bird had noticeably shorter legs than the Little Stints and it was perhaps a little smaller and more finely built.

The colour pattern presented by the Temminck's Stint in flight was usually not distinguishable from that of the Little Stint and it was virtually impossible to single out the bird from a mixed flock. The characteristic rump- and tail-pattern was occasionally conspicuous, as notably when occasionally the bird flew directly away from the observer below eye-level with tail-feathers depressed and fanned. Sometimes also it would alight with its plumage in sufficient disarray to cause some of the white outer tail-feathers to be still clearly visible.

The bird was commonly encountered on the wet, muddy tanks in company with Curlew-Sandpipers (*C. testacea*) and Little Stints, of both of which species exceptionally large numbers were present on the farm at the time, but on other occasions it was to be found alone, or in a loose association with Common Snipe (*Capella g. gallinago*), on tanks which were nearly dry and already patchily grown with vegetation. Its behaviour when disturbed differed markedly with the circumstances. With other small birds it arose with the flock, flying straight and fast over the tanks, performing evolutions and frequently alighting in company. When alone, however, it displayed the more characteristic behaviour, rising in snipe-like zigzag manner, with a fluttering wing action recalling that of the Common Sandpiper, and towering erratically upwards to a considerable height, uttering at intervals its peculiar rippling call, like a a sharply trilled "r"—"trrrr-trrrr." It usually stayed up for some minutes, calling and passing to and fro, then gliding down rapidly, frequently to the same or a nearby tank.

When seen feeding with Little Stints it seemed rather less active than did these birds and tended less to probe deeply, feeding rather by picking lightly at the surface whether of mud or water. It was occasionally seen to pick food from foliage. It usually waded in the more shallow areas of the pool or moved along the drying mud-edge, frequently peering at the observer from among vegetation. It was never seen to wade belly-deep as the Little Stints did frequently. Very nearly indifferent to observation, it was, however, rather less so than were the Little Stints, and in a feeding flock with this species was usually the furthermost from the observer and the most visibly watchful ; although, curiously, it was often the last to rise, tending to crouch at first alarm. N. W. CUSA.

On October 7th, 1946, R. H. Prestwich saw a Temminck's Stint in the same place and in his company and that of other observers I saw it on October 13th. I do not think it was the same bird as that seen in September. On this occasion I noted that its white outer tail-feathers were prominent in flight and could also be seen at times as it walked rapidly about ; this bird did not soar nor trill while I was watching it. A. W. BOYD.

LITTLE RINGED PLOVERS IN BERKSHIRE, KENT, HERTFORDSHIRE AND CHESHIRE.

ON May 11th, 1946, at a locality in Berkshire, J. G. Parker and other observers got within about five yards of a Little Ringed Plover (*Charadrius dubius curonicus*). The yellow orbital ring and, in flight, the absence of wing-bar were clearly seen. I was unable to find the bird that evening, but in the afternoon of May 30th, I saw it or another in the same place, and it was seen again by J. G. Parker in the evening. This bird uttered the characteristic note and the absence of wing-bar was clearly seen, as well as the yellow orbital ring and yellowish legs. On the afternoon of June 8th I watched two, or possibly three, birds at close range through a x 40 telescope, the general characteristics as above noted being all clearly seen.

These birds appeared to be making "scrapes" in dry earth and gravel. On investigation of one of these places I found that a definite hollow had been made. One bird kept rising and flying around about two feet from the ground over the other, uttering a "trri-i-i-i-i . . ." note. Then it would land about two yards from the one making a scrape and run towards it with a note which

J. G. Parker described as grating, but which sounded softer to me than this suggests—more of a burring sound. When alarmed both birds used the ordinary single note.

In the evening the birds were seen again by J. G. Parker, D. N. Callender, D. C. Wilkinson, M. F. B. Parker and others. They were extremely hard to see as they ran about on the dark background and it is easily possible that they had been missed between May 30th and June 8th. On the following days, however, I carried out a very careful search of the whole area, but was unable to find the birds again. PETER GLADSTONE.

A SINGLE Little Ringed Plover (*Charadrius dubius curonicus*) was seen on an East Kent coastal marsh between July 12th and 24th under varying but often ideal conditions, when its diagnostic features were plainly visible. The distinctive note was also heard frequently. It showed a preference for the dryer parts of the marsh and was rarely seen on actual mud. In addition to our observations upon this bird, it was also seen by Mr. T. C. Gregory, whilst in our company on July 13th.

JAMES M. HARRISON AND JEFFERY HARRISON.

ON July 14th, 1946, Mr. George Edwards and I flushed a small wader from a shallow pool on a North Kent salt-marsh. It rose a few yards in front of us and flew low calling a sharp "pee-ou, pee-ou" several times. Being familiar with this species in Europe and Africa, I immediately recognized the call as that of the Little Ringed Plover (*Charadrius dubius curonicus*). Before it gained height we both noticed (with field glasses) the uniform brown wings *without* white bars. The bird began to "tower" and flew over our heads so that we were able to see the general appearance and the head and chest markings. It flew off towards the mouth of the creek calling eight or nine times the same sharp call. The bird was an adult.

On September 8th, I flushed an immature bird at exactly the same spot. In a terrific downpour of rain it rose, calling, a few yards in front of me. I got my glasses on to it and besides noting the absence of white wing-bars I observed a light fringe to the tail, a point I have noticed with immature birds that I have seen in Africa and Italy. The fact that this was an immature bird was subsequently confirmed by Mr. P. W. E. Currie, who informed me that he had seen an immature Little Ringed Plover at the same spot on August 31st. ERIC GILLHAM.

ABOUT 3.30 p.m. on August 4th, 1946, an immature Little Ringed Plover (*Charadrius dubius curonicus*) alighted on the mud at Startops End Reservoir, Tring, and joined three Dunlins that were feeding there. Its slim build and definitely smaller size than Dunlin led me to suspect that it was of this species, which I confirmed by flushing it at close quarters, when it was clear that there was absolutely no wing-bar. The pectoral band, though complete, was brown. I may add that I am quite familiar with the species, having many times watched the 1938 pair at Tring and their young.

H. H. S. HAYWARD.

ON September 5th, 1946, while watching birds on Altrincham Sewage Farm, Cheshire, I had the good fortune to see and identify two Little Ringed Plovers (*Charadrius dubius curonicus*).

I watched them feeding in company with two Ringed Plovers (*Charadrius h. hiaticula*) and so was able to compare them fairly accurately. The two birds which I suspected to be of the Little species were definitely smaller and much slimmer and more graceful than the plump Ringed Plover. The upper parts were also clearly much lighter grey-brown than those of the common species. The legs were pale flesh-colour in comparison with the striking orange-red of the Ringed Plover. Their bills appeared blackish. On being flushed neither of the suspected birds showed any trace of a wing-bar, and this seems to put their identity beyond a doubt.

They were again seen in the afternoon of the same day by Mr. P. Willis and myself. During the afternoon of the 6th, one bird for certain of this species was seen by Messrs. W. Cullen, P. Willis and myself. There may possibly have been two. Mr. Cullen was satisfied that this bird was correctly identified and himself noted the distinctive features. They were not seen again.

This species has not been previously recorded in Cheshire.

JOHN SOUTHERN.

DOTTEREL IN KENT.

ON September 2nd, 1946, when crossing the shingle by the Hope and Anchor, Dungeness, I heard the characteristic tinkling note of Dotterel (*Eudromias morinellus*) as I flushed a party of five birds. At close range on the ground, the prominent white eye-stripe was clearly visible. The white pectoral band was faint, while the chestnut and black patches on the belly had a faded appearance. The party was later joined in flight by two other birds almost certainly of this species.

R. C. HOMES.

PATTERING ACTION OF LAPWING WHEN FEEDING.

BY very close observation with a 35 x telescope I have noticed that an extremely rapid almost vibratory movement of a forward-raised leg is used by Lapwings (*Vanellus vanellus*) when feeding near the edge of a reservoir. This tapping of the earth's surface would suggest a search for food and I believe I have seen it attributed to some waders but not to the Lapwing, and *The Handbook* does not mention it in this species.

C. W. HOLT.

[This rapid vibratory action of the foot when feeding has been described in the Ringed Plover (*Charadrius hiaticula*) and some other waders, but we have not observed it in the Lapwing and have no references from literature to its occurrence in this species, though we would not assert that none exist.—EDS.]

CLUTCH SIZE OF OYSTER-CATCHER.

FR. HAVERSCHMIDT (*antea*, Vol. xxxix, p. 335) states that clutches of four eggs of the Oyster-catcher (*Hæmatopus ostralegus*) are quite common in Holland, and substantiates this by an analysis of the contents of 70 "nests with eggs inspected in recent years." As it is not apparent from this whether or not these were known to contain full clutches, it may therefore be valid to offer for comparision an analysis of the contents of 65 nests found by my father, Colonel Ronald Campbell, and myself in the Ardnamurchan district of Argyll between 1921 and 1929, but which also are not guaranteed to be full clutches, while several of the clutches of two are known to be second layings.

No. of Eggs in nest:	4	3	2	1	*Total Nests.*
Holland :	7 (10%)	42 (60%)	19 (27%)	2 (3%)	70
Ardnamurchan:	3 (5%)	30 (46%)	28 (43%)	4 (6%)	65

The average clutch size of the Dutch series is 2.77, or 2.83 if we ignore the nests with one egg ; for Ardnamurchan the figures are 2.49 and 2.59, and, although the species concerned are so different, it may be permissible to recall that Lack has shown (Vol. xxxix, p. 106) that clutch size in the Robin (*Erithacus rubecula*) also tends to be larger in Holland than in the North of Scotland.

BRUCE CAMPBELL.

INCREASE OF OYSTER-CATCHER AS BREEDER IN EAST. SUSSEX.

HARRISON and Moore (*antea*, Vol. xxxviii, p. 338) have recorded the breeding of the Oyster-catcher (*Hæmatopus ostralegus occidentalis*) in East Sussex during 1945. It seems desirable, therefore, to put on record the substantial increase in breeding pairs in 1946. It must first, however, be pointed out that there was a nest at Rye Harbour in 1944 (*Hastings and East Sussex Naturalist*, Vol. vii, No. 1). The eggs were taken.

During 1946 six pairs have bred within the East Sussex boundary. These were located as follows : (a) Pett Level, (b) Pett Level, (c) Winchelsea Beach, (d) Rother Saltings, (e) Rye Harbour and (f) The Midrips. Of these (a), (d) and (e) alone reared young ; (d) after four attempts

There have been an unusual number of Oyster-catchers in the area in 1946. On May 26th as many as 32 were seen ; on June 16th there were 45, and on August 18th, 78 birds.

These notes are compiled from the observations of Dr. N. F. Ticehurst, Messrs. J. C. Wickens, B. T. Brooker, E. Giles, H. A. R. Cawkell and the writer.

E. M. CAWKELL.

LITTLE BUSTARD IN WILTSHIRE.

A LITTLE Bustard (*Otis tetrax*) was seen feeding in a clover field at Little Wishford, Salisbury, on July 16th, 1946, at 8.30 p.m. by E. G.

Parsons and Squadron Leader Scotter. It was seen again on July 18th by E.G.P. and later the same day by him, this time accompanied by Mr. and Mrs. Oscar Peall, Mr. G. W. Collett and Mrs. R. G. Barnes.

We approached the bird by car, of which it showed little fear, and this time we were able to watch it at a distance of not more than ten yards. We were able to note the black and white gorgets of the adult male, the sandy mantle, and white under-parts. There was no trace of the slate marking on its head, as shown in *The Handbook* illustration, the head being brown with light eye-stripe, and the iris pale yellow.

After a few minutes the bird rose and flew some 80 yards. When in flight, a large amount of white was shown in the wings, under the tail and on the under-parts. The wing-beats were rapid, and in gliding down the wings were bowed like a grouse. When flushed again from the clover, it flew into an adjoining field of potatoes. It was seen again on July 21st by B. Brown. The bird was observed again in the same place on September 20th, but not subsequently.

E. G. PARSONS AND RUTH G. BARNES.

SCANDINAVIAN LESSER-BACKED GULLS IN NORTH EAST SCOTLAND.

ON February 17th, 1946, just before a heavy snowfall, I obtained good views of five Scandinavian Lesser Black-backed Gulls (*Larus f. fuscus*) on a sand-bank at the mouth of the River Ythan, Aberdeenshire. They were watched through a x 40 telescope ; four were adults, while the fifth appeared to be in "second-winter" plumage. The important characteristics were noted, the very dark wings and mantle being most distinctive and striking.

During a snowstorm, on March 2nd, 1946 I saw three of these gulls along with a large number of other gulls on the estuary of the Don, just north of Aberdeen, and, slightly later, on March 23rd, my father and I watched one at very close range standing on a big rock close to Banff Harbour. The identification of the latter bird was much simplified because of a Great Black-backed Gull (*Larus marinus*) which fortunately happened to be standing beside it.

The Banff bird appears to be the first record for Banffshire.

ADAM WATSON.

HAWFINCH AS PREY OF SPARROW-HAWK.—Further to previous notes on this item of food of the Sparrow-Hawk (*Accipiter n. nisus*) by Messrs. K. R. Chandler and H. E. Pounds (*antea*, Vol. xxxix, pp. 64, 191), Mr. Chandler has sent us the lower mandible of another Hawfinch (*Coccothraustes c. coccothraustes*) found amongst food remains at a Sparrow-Hawk's eyrie in Surrey on August 12th, 1946.

SKY-LARK HOPPING.—Major G. E. Took sends us a note of a Sky-Lark (*Alauda a. arvensis*) near Dover, which he observed hopping on May 18th, 1946, instead of the usual walking gait. He watched the bird feeding for about three minutes, during which time it hopped in four stages over a distance of approximately a yard. A good many walking birds may be observed to hop on occasions on rough ground or for other reasons.

SPOTTED FLYCATCHER FEEDING FIRST BROOD WHILE INCUBATING SECOND CLUTCH.—Mr. C. W. Towler informs us of another case of a Spotted Flycatcher (*Muscicapa s. striata*) feeding a first brood while incubating a second clutch of eggs (see *antea*, Vol. xxxix, p. 342). The young flew from a nest in Bedfordshire on June 23rd, 1945, and were still being fed on July 13th, when the presumed hen was incubating a second clutch in the same nest.

REDSTART SINGING IN AUGUST.—Mr. J. Southern reports a Redstart (*Phœnicurus ph. phœnicurus*) seen and heard singing on Graig Ddu Mountain, Rhewl, Llangollen, N. Wales, on August 15th, 1946. The song, which was heard several times, seemed more disjointed and harsh than the usual breeding-season song.

BLACKBIRD'S NEST AT UNUSUAL HEIGHT.—Messrs. Raymond Jackson and Keith Macgregor send us particulars of a hen Blackbird (*Turdus m. merula*) at Edinburgh which was observed on May 11th, 1946, building a nest in the topmost branches of a sycamore at a height estimated at about 90 ft. from the ground.

EARLY ARRIVAL OF WIGEON IN CORNWALL.—Mr. A. J. Appleton reports finding seventeen Wigeon (*Anas penelope*) on Marazion Marsh, Cornwall, on August 24th, 1946. This constitutes a notably early record for a flock, especially for a locality so far south and west. *The Handbook* states that birds "arrive N. and E. coasts from end August . . ."

AGGRESSIVE DISPLAY OF THE RINGED PLOVER.—*Correction.*—In plate 3, for " male " read " female."

UNUSUAL BEHAVIOUR OF WATER-RAIL.—Prompted by the note under this heading in a previous number (*antea*, Vol. xxxix, p. 253) Sir Nevile Bland writes to report another incident with a Water-Rail (*Rallus aquaticus*), which occurred in the autumn of 1939. Sir Nevile found a Water-Rail on the window-sill of his dressing-room at the British Embassy, The Hague, at about 8 a.m., and was able to watch it at a distance of a few feet for some minutes before it flew away, apparently uninjured. The window was about 20 feet from the ground, facing east and opening on to a garden in the middle of the town.

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DISPLAY OF THE MUTE SWAN

BY

J. S. HUXLEY.

On reading A. W. Boyd's note on display of the Mute Swan (*Cygnus olor*), *British Birds*, Vol. xxxix, p. 182, I turned up my own notes and from them I have been able to extract the following points, which do not seem to be covered adequately by the account in *The Handbook*.*

(1) Cuttmill Ponds, near Puttenham, Surrey, April 11th, 1921. On the lowest (mill) pond a pair with nest containing three eggs. The hen was sitting, but left the nest for the open water as I approached. On seeing this the cock half flew, half flapped towards her, swimming the last portion with wings in the forwardly-arched position typical of the male. The female then assumed the same pose, facing her mate, though her wings were not so fully spread and arched as his, and the pair remained thus close to each other, until I left the vicinity. This (mutual) employment of a normally hostile attitude is mentioned by *The Handbook* as occurring "in certain circumstances," for instance, "after driving off intruders." In such cases, however, it is stated that "when breasts are almost touching, heads are suddenly stretched straight upwards and then returned to normal, while both utter prolonged snoring note." This latter pose and utterance was not exhibited by my birds—which, however, had not driven off the intruder, in the shape of myself, but were apparently reinforcing each other's courage and emotional level.

I have tested that mutual emotional reinforcement of this sort was habitually carried out by a pair of Whooper Swans (*C. cygnus*) at Whipsnade, but by means of a different display. On strangers threatening them or coming too close to the small pond where they were kept, the two would join each other on the water, in the same way as did the Mute Swans observed by me, and then both repeatedly raised and lowered their necks with a loud whooping note, and with wings partially extended outwards and downwards. This is almost exactly as described in *The Handbook*, except that there it is stated that this occurs either after an intruder has been driven off, or in greeting fresh arrivals at the winter gatherings of the species. At Whipsnade, however, as with my Mute Swans at Cuttmill, this action took place while a human intruder was still threatening, and was clearly concerned with "keeping up the spirits" and courage of the pair by mutual emotional reinforcement, instead of as an expression of relief at successful action. This was especially clear on one occasion when a Mute Swan had flown on to their little pond. Neither of the Whoopers at first attacked the intruder, but after they had swum together and indulged in this

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*Based on the account of O. Heinroth, *Verh. d. V Internat. Ornithol.-Kong.*, 1910, pp. 592-602.—Eds.

mutual ceremony, the cock, followed by the hen, swam at the Mute Swan and drove it away. Otherwise my observations tally with *The Handbook*, except that I should agree with E. Selous (*Zoologist*, 1913)—whom *The Handbook* does not cite—that the call is a "glad cry," not a "mournful-sounding note."

(2) Same place and date, but on the next higher pond. Striking pre- and post-coitional performance, similar to the description in *The Handbook* except in the points indicated below (in italics). The pre-coitional display was already in progress when I first saw the birds, and continued for over ten minutes before coition occurred. Throughout the birds were *side by side, facing in the same direction*. The dipping of heads under water as described in *The Handbook* took place repeatedly, but was usually accompanied by a *dabbling in the water, apparently from side to side, with the beak, which seemed to be repeatedly opened and shut, lasting from three to ten seconds*. This seems to be a "habit-action," similar to the habit-preening described and discussed at length by me for the Great Crested Grebe (Huxley, *Proc. Zool. Soc. Lond.*, 1914: 491-562) and Red-throated Diver (1923, *J. Linn. Soc.*, 35: 253-292), where during the excitement of display an action subserving some quite other and non-sexual function is performed, but in a non-functional "ritual" way. These birds also occasionally showed a *further development of this "habit-feeding," by first dipping the neck much further under water* than in the normal head-dipping, *and then dipping the whole fore-part of the body under water. Sometimes the neck appeared to be stretched vertically downwards*, as in feeding on weeds on the bottom.

In addition to "habit-feeding," the birds showed habit-preening as in my Grebes—(a) *ritual actions symbolic of preening, or* (b) (*more frequently*) *between head-dippings, rubbing the head along one flank or the other, as is often seen in true preening*. The ritual habit-preening was quite different from the true preening seen after the post-coition ceremony. The head-rubbing and the fuller type of habit-feeding were apparently performed more often by the male.

Coition lasted *10-15 seconds* (as against the 3-5 seconds of *The Handbook*) and was terminated by what I noted as "*a hoarse attempt at a trumpeting cry*" (instead of *The Handbook's* "snoring note").

The post-coition ceremony lasted only 10 to 15 seconds. It was as described in *The Handbook* except that I heard no note accompanying it. The vigorous preening, tail-wagging, etc., which then ensued was still going on when I had to leave about five minutes later ; but I saw *none of the "prolonged bathing"* described in *The Handbook*.

(3) Same place, lowest (mill) pond, March 24th, 1923. A pair were occupying a nest, and an odd bird (a hen) was standing in a smallish heap of nest material 20 or 30 yards away. (It was rare for more than one pair to occupy this pond). When first seen, the

hen of the pair was brooding and the cock sitting on the rim of the nest. After 12 minutes the cock, after three snorts, began to pull material from the outer rim of the nest or just beyond, higher up on to the nest. After three minutes of this, with three further snorts on the cock leaving the nest, the hen continued what he had been doing. The cock went off a few feet and proceeded to pick up reed-stems and floating débris. However, he never brought them to the nest, but merely dropped them behind him over his shoulder. This continued for 13 minutes, after which he swam off.

Curiously enough, I had just seen this ritual non-functional gathering of nest-material for the first time, by another bird (probably the cock, but the sexes were hard to distinguish) of a pair nesting on the pond next above. In this case the bird was "about 2½ yards from the nest, picking up loose débris from among the bulrushes, and turning to deposit them not on the nest but on the water nearer to the nest."

On my first approaching, some time earlier, the hen had slipped off the nest and the cock had "swam about nearby, pulling at growing bulrushes and débris, often in a curious attitude with the neck stretched right out along the surface of the water." This may have been an expression of fear or frustrated anger. Neither of these habits is mentioned in *The Handbook.*

To return to the pair on the mill-pond, the cock, after chasing a tame white duck into the reeds, then returned slowly in the characteristic aggressive "arched-wing" attitude, but found the hen dozing unresponsive on the nest. He then swam off in the direction of the unmated hen. When he was close to her, the two birds came out together on to the open water and started a prolonged display, culminating in attempted coition *by the hen*, the whole lasting just over 20 minutes.

Neither the "bigamous" behaviour nor the reversed pairing (as in Great Crested Grebes—Huxley, *Proc. Zool. Soc.*, 1914 ; or Moorhens—Howard, *Bird Behaviour,* Cambridge, 1929), is noted for this species in *The Handbook.*

My notes on this lengthy display provide a rather fuller description than that given in *The Handbook*, and I summarize them here. The display was built up of five distinct actions :—

(1) Dipping of the whole head and neck below water, with a slight forward tilt of the body so that the entire base of the neck, including its dorsal side, was submerged. The head was then brought quickly up and shaken as it emerged, all in a single movement, making a splashing sound.

(2) Less frequently, the head alone was dipped and held below the surface for a few seconds. Here again, at the finish it was usually shaken, either while still below the water or immediately after emergence. The only action of this type noted by *The Handbook* is a repeated dipping of the head under water, followed by quick withdrawal. This apparently refers to my No. 2.

(3) One of the two kinds of habit-preening observed in the 1921 pair (see above), namely the rubbing of the back of the head against the bird's flanks and back.

(4) A frequent attitude :—close together, with both necks erect but heads arched somewhat forward. While in this pose the birds might be side by side, either facing in the same or in opposite directions, or facing each other.

(5) No cry was heard, but there was a good deal of what I note as "heavy breathing"—possibly the "snoring" of *The Handbook*, but there not noted for the pre-coition display.

All these actions were performed by both birds, though the cock did much more neck-dipping. There was no regular sequence of the different actions, though usually the ritual head-rubbing (No. 3) alternated between two neck-dippings (No. 1).

It will be noted that this display contained some elements lacking in that previously described, and vice versa.

In the first five minutes, the cock performed the neck-dipping 44 times. Then the hen nipped hold of the cock's tail and attempted to mount. This was followed by confused flapping in which the cock pursued the hen towards the reeds. Shortly afterwards the display was resumed for a further five minutes, during which the cock gave 35 more neck-dippings, making 79 in all. Then the hen once more attempted coition, but the cock shook her off and then "apparently angrily" flapped at her, upon which she retired into the reeds. On this, the male approached her, went through the neck-dipping performance four more times (solo neck-dipping is not recorded in *The Handbook*), and then swam off to near his own nest. 14 minutes after the second attempt at coition the odd female bird was sitting quietly just outside "her" area of reeds, while the male had gone off out of sight up a small stream. The male's rightful mate never evinced any sign of jealously ; for the most part she brooded quietly or dozed, once repeating the performance of picking material from the outside of the nest, putting it in the inner rim. My notes conclude :—"the whole incident was very Jupiter-and-Leda-ish."

I want to stress (a) that the sexes of the mated pair were noted by me as easy to distinguish, (b) that the odd bird seemed definitely to have been a female (my notes describe it as having "a small knob on a pale-yellowish bill), (c) that in both cases I note of the bird which attempted coition that "I am quite sure," and "again absolutely sure," that it *was* the unmated bird, and therefore almost certainly a female, and in any case not the male of the mated pair.

While on the subject of swans, I may conclude with an unpublished observation of Edmund Selous, which he told me verbally. When he visited Tring Reservoirs in early March of one year shortly before World War I, he noted a pair of Black Swans repeatedly driving away a pair of the much larger and heavier Mute Swan. The keeper informed him that a little later, when the Mute Swans began nesting, the tables were turned, for they then became bellicose and easily drove away the Blacks—in fact in a later year they killed one of them. This would appear to depend on the difference in season of ripening of the gonad in the southern hemisphere species, and in any case is a pretty example of the dependence of behaviour upon internal secretion.

SUMMARY.

(1) Notes are given on the display and reproductive behaviour of the Mute Swan, which supplement the account in *The Handbook*.

(2) The normal aggressive male arched-wing attitude is used as a mutual ceremony by the mated pair, not only after driving off an intruder but during the presence of an intruder who cannot be or has not yet been driven away. It is interpreted as a method for mutual reinforcement of emotion and courage, as is a rather different mutual ceremony of the Whooper Swan.

(3) In the prolonged pre-coitional display there are more elements (elementary actions) than the repeated dipping and quick withdrawal of the head which is the only action noted in *The Handbook*. These additional elements (not all seen on every occasion) are (a) dipping of the whole head and neck, accompanied by a forward tilt of the body, (b) mutual neck-erection—both necks held nearly vertical, but with head somewhat arched forward, (c) occasional "habit-preening" (ritualized preening actions), (d) more frequent ritualization of the head-rubbing seen during normal preening, when the back of the head is rubbed against the flank or back, (e) "habit-surface-feeding"—gobbling and dabbling with the beak, accompanying the head-dipping, (f) "habit-bottom-feeding" —stretching the neck vertically downwards, accompanying the neck-dipping described in (a) above, (g) a good deal of "heavy breathing" (perhaps the "snoring" of *The Handbook* though this is there noted only during and after coition), but no definite note.

(4) Pre-coitional display was noted between an already mated male (with sitting mate) and an unmated female.

(5) In this case, two attempts at coition were made, *both by the female*. The Mute Swan is therefore to be added to the list of birds in which "reversed coition" may occur or at least be attempted.

(6) Ritual gathering of nest-material may occur. Here the male (in all cases observed by me) picks up nest material off the surface of the water, but merely drops it again over his shoulder.

(7) Before their gonads have fully ripened Mute Swans may submit to being chased away by Black Swans, but later in the season will expel and even kill them.

OBSERVATIONS IN A ROOKERY DURING THE INCUBATION PERIOD

BY

C. M. OGILVIE.

METHOD OF OBSERVATION.

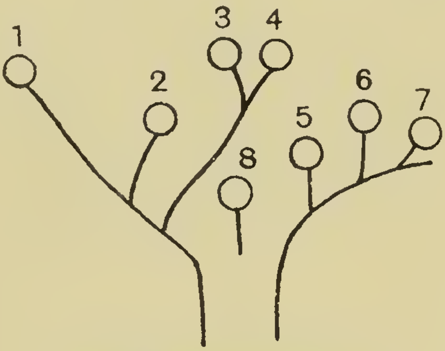
FOR the purpose of the observations here described a clear day was chosen and a date when incubation was the main activity in the rookery—March 24th, 1946.

A colony of eight nests was observed continuously from 10.30 a.m. (G.M.T.) to 6.45 p.m. (dusk) from a house window near the level of the nests. For purposes of reference the nests were numbered from left to right (the eighth nest was situated well to the rear of the others).

The position of each member of the rookery was recorded at five-minute intervals: either "sitting," "standing by the nest" or "away." Apart from these three positions, every activity noted within the colony was recorded.

OBSERVATIONS.

The Nests.—In six nests, incubation was proceeding (1, 3, 4, 5, 6 and 8); the seventh nest was under construction (2) and an eighth unoccupied (7).



PLAN OF THE GROUP OF EIGHT NESTS.

Frequency of Visit.—The visits of the cocks with food and the builder (No. 2) with material were variable in frequency throughout the day. Prolonged sojourns by the nest or absences from the rookery alternated with periods of foraging and of frequent visits. For example, the building bird brought material to the nest 11 times in the half-hour period of 2-2.30 p.m. (G.M.T.). In the subsequent hour, seven visits only were paid. The longest period of absence recorded was for No. 3 cock, who remained away from the nest from 2.35 until 3.10 p.m. (G.M.T.). Several cocks remained inactive by the nest for periods up to 40-50 minutes.

The following figures, derived from my five-minute "roll-calls" of the whole colony, indicate the attendance rate of the cocks (beside the nest), the hens (actually sitting), and of the building bird :—

Cocks present 198 times (out of a possible 324).
Hens present 276 times (out of a possible 324).
Builder present 28 times (out of a possible 42).

The number of visits per hour of each cock bird and of the builder is indicated in the figures tabled below.

TIME	NO. 1	3	4	5	6	8	2 (Builder)
2.30-3.30 p.m.	9	3	9	Not noted.			7
4.45-5.45 p.m.	6	3	12	5	5	7	6

The Ritual of Feeding.—In most instances, the ceremony conformed to a typical pattern :

(*a*) The hen heralds the approach of her mate with loud calls and shifts about the nest in obvious excitement.

(*b*) The cock alights beside the hen and feeds her upon the nest ; she accepts the food with her feathers quivering, the loud crowing now curiously muffled. On two occasions, the cock landed several yards from the nest ; after prolonged and fruitless protest, the hen left her eggs and flew up to solicit the food (No. 8). Although I have often witnessed "soliciting," this was the only instance of a hen leaving the nest to receive food on this particular day—presumably a vital time in the incubation period.

(*c*) The cock side-steps away from the nest and is often followed by the hen. A curious performance would often ensue : the beak is drawn to and fro across a branch as a knife is sharpened on a stone. The purpose of this procedure is not clear ; although both birds would do it, there does not appear to be any mutual significance in the act. Yeates refers to the performance after feeding as "beak-wiping" ; although it frequently occurs after feeding, I have seen it carried out by cock birds at other times.*

(*d*) In most instances, the cock leaves after a few minutes and the hen, if she does not accompany him, immediately returns to the nest. Both birds may remain beside the nest or fly around together, but the female returns to the eggs within a few minutes. Courtship and coition may occur in this postprandial period, and on several occasions the cock attended to the nest (?twig adjusting). No. 5 cock often hopped on to the unoccupied nest(7) and fed on something taken from among the twigs ; his mate stood nearby, but made no attempt to join in the repast. On no occasion during the day did I witness any effort by the female to feed herself ; this may of course, have occurred during the few brief absences of the hen birds with their mates.

Incubation.—Throughout the eight hours of observation, none of the six cocks made any effort to incubate the eggs; at all events,

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*Bill-wiping occurs as an accompaniment of sexual excitement in many species of birds.—EDS.

I witnessed no change-over take place. On several occasions, however, the cock probed about in the nest, presumably adjusting twigs or turning eggs.

Incubation was neglected only during the period after the cock's visit with food and, on one occasion, during a "general alarm." The hen birds were not seen to leave the nest at any other time. Excepting four occasions during the day, no nest was left uncovered for more than five consecutive minutes; the four instances were:—

(*a*) All nests deserted for about ten minutes during a general alarm (human disturbance).

(*b*) Nest 5 neglected for 20 minutes (both birds beside the nest).

(*c*) Nest 8 neglected for 15 minutes (both birds beside the nest).

(*d*) Nest 1 neglected for 20 minutes (both birds away).

As recorded above, the hen bird was seen actually sitting on the nest 276 times in 324 five-minute observations.

Mating.—Courtship display and pursuit occurred on several occasions when the female left the nest after feeding. The performance was essentially brief and hurried, however, and actual coition ensued on only five occasions during the day. Four times the act was accomplished on the nest (pairs 1, 1, 6 and 8) and in the fifth instance coition was attempted beside the nest (pair 5). With one possible exception, coition between mated pairs did not provoke attacks by other members of the colony. The case about which I am doubtful occurred as the birds returned to the rookery after a "general alarm"; No. 1 pair appeared to be mobbed whilst mating, but I am not sure that the male partner was in fact the lawful mate.

Intrusions and other disturbances. I recorded over 20 disturbances in the normal routine of the colony during the day.

My observations support the view of Yeates that "fights" within the rookery during this period are often the outcome of promiscuous sexual attacks. I witnessed these battles on 13 occasions and I have no doubt that the initial assault in each instance was sexual in nature; the following sequence was noted in every case :

(*a*) A cock bird flies down upon a sitting hen and at once attempts coition.

(*b*) The hen usually resists the assault with vigour ; she would often fly from the nest and defend herself in the air.*

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*I have long felt somewhat sceptical of the view that mobbings of Rooks by other individuals during coition or attempted coition are mainly confined to promiscuous or "stolen" matings, but the evidence that this is so is difficult to resist. The idea that such behaviour is somehow resented as "antisocial" can hardly be entertained seriously ; it seems likely that Mr. Ogilvie's observations provide the clue and that birds other than the rightful mate are stimulated to interfere by the resistant behaviour of the female. It is no doubt the instinct of such strongly colonial birds as Rooks—as Lorenz (*Proc. Eighth Internat. Ornithol. Congress*, Oxford, 1934, pp. 205-218) showed is the case with the Jackdaw—to react in defence of fellow members of the colony which are in danger or difficulties, and if the female's behaviour is consistently resistant to the intruder, this would no doubt suffice to evoke the action described from neighbouring birds.—B.W.T.

(*c*) Other members of the rookery intervene; in the first instance the nearest cock or the legitimate mate, but ultimately several may join in the affray. The "mediators" are not always impartial, for on one occasion No. 4 cock himself assaulted the hen whom he had just delivered. The sitter on No. 8 nest (rather remote from the main colony) was the only hen not attacked in this manner during the day. An unmated bird was often present in the colony (recorded in about half of my five-minute "roll-calls") and was responsible for a number of these assaults. He was driven away from No. 4 hen by the returning cock; undaunted, he immediately attacked No. 6 hen and was again repelled by No. 4 cock. Later in the day this same bird made several assaults on No. 1 hen, each being frustrated by the lawful mate.

Aggressor.	Victim	Mediators.
No. 6 cock	No. 5 hen	No. 2 (builder)
,, 1 ,,	,, 5 ,,	,, 6 cock
? 1 ,,	,, 1 ,,	Two rooks
,, 4 ,,	,, 6 ,,	Several rooks
Unmated rook	,, 4 ,,	No. 4 cock
,, ,,	,, 6 ,,	,, 4 ,,
,, ,, (3 attacks)	,, 1 ,,	,, 1 ,,
Marauder (non-member of colony)	,, 1 ,,	Several rooks
Unidentified	,, 3 ,,	Two rooks
,,	,, 6 ,,	Several rooks
,,	,, 2 ,, (builder)	Many rooks

Intrusions other than promiscuous sexual attacks also evinced an aggressive response from the male birds :

(*a*) The unmated Rook visited the colony frequently and always perched a few feet below Nest 3. He was repeatedly driven away by No. 3 cock and once they fell to the ground in fierce combat.

(*b*) No. 1 cock, returning from a foraging sally, tried to settle beside No. 6 nest, which was unattended. He was immediately driven off by No. 4 cock and returned forthwith to his own nest.

(*c*) Strangers to the colony were dealt with on three occasions by the local cocks (1, 6 and 5). Each time the intruders, although never obviously aggressive, were closely pursued into the surrounding trees.

Building.—One nest (No. 2) was under construction throughout the day. The frequency with which material was brought to the nest has been noted. Twigs were taken sometimes from the tree itself but more often from a nearby copse.

It is certain that most if not all the work was carried out by the same bird, which rarely ventured far in its search for material. Two birds were present beside the nest on one occasion only, just 30 minutes before sunset; the builder, after waiting by the nest for about 20 minutes, was joined by a second Rook carrying a twig. The latter remained by the nest for a few moments and then departed.

An assault by an unidentified Rook upon the building bird was undoubtedly of a sexual nature; this suggests that the builder was a hen bird.

SUMMARY AND CONCLUSIONS.

A rookery of eight nests (one unoccupied) was closely studied throughout a day in the incubation period.

The hen birds applied themselves almost exclusively to incubation; excursions were rare and very brief. Feeding, and coition when this occurred, took place upon the nest.

The cock bird was responsible for feeding the hen, a duty performed with characteristic ceremony at irregular intervals. Various intrusions within the colony and invasions from without were combated by the male birds.

Coition was more often promiscuous than between mated pairs and took the form of an assault resisted by the hen and countered by other cocks. This phenomenon may result from the disparity of duties during this period: the intense demands of incubation suppressing the mating instinct of the hen, whilst idleness enhances this desire in the male bird. An unmated cock, with instincts neither blunted by duty nor requited in wedlock, was thus the main offender.

The building of one nest was observed ; the male was not seen to participate directly in this work.

JACKDAWS BREEDING IN THE SHETLAND ISLES

BY

L. S. V. AND U. M. VENABLES.

THE Jackdaw (*Corvus monedula*) is recorded in *The Handbook* only as a visitor to Shetland ; this applying both to *C. m. spermologus* and to the Scandinavian form *C. m. monedula*. Some years ago, Mr. G. T. Kay and others noticed that a winter flock of Jackdaws was becoming of regular occurrence around the head of Weisdale Voe on the west side of Mainland (950730—six-figure map reference): the vast majority of these showing the white neck patch typical of the Scandinavian form. We learn from the Minister of Weisdale and Mr. Sandison of Kergord that one or two pairs have been nesting in the manse chimneys for the last two or three years. The only other possible breeding record for Shetland we have is for the island of Noss. L.S.V.V., who was there in June 1934, was told by the shepherd that he had seen Jackdaws in late May of that year carrying sticks to the Noup of Noss. L.S.V.V. did not see these birds during his visit and the shepherd did not see them again, but it is extremely difficult to locate any individual on this 600 ft. cliff with its huge breeding population of Gannets, auks, Fulmars, gulls, etc.

We came to reside on the shore of Weisdale Voe in July 1945, and noted that there were two family parties of Jackdaws around the voe-head—one of five and one of six. The four adults all showed the white neck patch, but it was well into October before it became obvious on the young birds, though, of course, it might have been visible sooner on collected specimens. One might be tempted to claim this as the first breeding locality of *Corvus m. monedula* for the British Isles, but we realize the need for great caution in such a case.

By mid-winter the Weisdale flock had grown to over 20 birds, having been augmented by some more definite Scandinavians, plus a few that showed no white neck marking. However, *The Handbook* says that some cannot be separated from normal British birds in the field (as we have found in Scandinavia) or, possibly, they were genuine *spermologus* from Orkney or further south. This flock fed most frequently on the intertidal zone nearby, but were also seen pecking about on the grass and *Juncus* banks of the Burn of Weisdale, on oat ricks, at cabbages in a field, on bare ploughing and on oat stubble. We rarely saw them on the heather hillsides above the valley. Rooks, Carrion Crows, Hooded Crows and Ravens were sometimes with them. In early March the flock started to shrink in numbers.

The first sign of breeding activity was noted on February 12th, 1946, when two birds, which appeared to be of Scandinavian type, were sitting side by side on the manse and two more on the church, a few yards away. These were obviously paired birds. On

February 18th they were sitting in the same places and again when we passed on March 10th ; by which time the population had gone down to about 15.

The manse has three pairs of chimneys : east, north and west. On March 28th a Jackdaw was seen carrying a tuft of *Juncus* into an east chimney and a pair was sitting on a west chimney. The total population was then eight. On April 4th and 9th three pairs were building, one pair to each pair of chimneys, carrying in sticks, straw, wool and feathers. These six were the only birds seen. The minister told us that only one fire-place in each stack is used and it was in the "idle" chimneys that the nests were being built. The white neck patch could be seen quite well with field glasses on the east and north pairs of birds, but the west pair had patches so large and white that they could easily be distinguished with the naked eye. Huxley (1922) records a somewhat similar instance with an egret (*Egretta candidissima*) in Louisiana, where like mated with like in colour variation of the lores, and he points out the importance of this in helping to fix new varieties.

On April 22nd all six birds were seen sitting on their respective chimneys and another pair was seen one and a quarter miles to the north breaking off sticks near Kergord House and carrying them to a chimney there. At that time a fire was still sometimes lit under this chimney and it was May 7th before the Jackdaws really got started on the nest. Mr. Sandison and the writers all saw the white neck patches on these birds. On June 9th, chicks could be heard squeaking in the chimney and five young left the nest on June 27th.

A fifth pair nested 18 ft. up a spruce tree in Lindsay Lee (one of the Kergord Plantations : to be described in a future publication). They used an old nest, which we had noted in the previous winter, lining it with wool, oat straw and paper. Whether it was an old Hooded Crow nest or a Jackdaw nest of a previous year we are unable to say. L.S.V.V. climbed to it on May 22nd and flushed the bird off four eggs. On June 1st the nestlings could be heard squeaking : one subsequently fell out of the nest and two or three fledged safely at the end of June. We could only see the adults as they were flying about above the tree tops, so it was difficult to distinguish any white neck patch. One bird certainly had it, but we could never be certain of the other.

In the meantime some disaster had befallen the three pairs at the manse. The north and west pairs did not succeed in raising any young and the east pair was still feeding nestlings on June 12th. Apparently this was a second attempt, as building had started by March 28th here and not until early May at Kergord House and yet, on June 12th, both pairs were feeding nestlings. The minister confirmed this, saying that young had recently started squeaking in the east chimney, but none had been heard in the others. At least five adults were in the vicinity, occasionally sitting on the roof and chimneys, but only the chimney with the occupied nest was entered. This was the case on June 15th, too. Three young left the nest on June 28th (one day after the Kergord House family) and they, with their parents, joined the two adults remaining about the voe-head.

To sum up : one or two pairs of Jackdaws nested at the head of Weisdale Voe, Shetland, for a year or two previous to 1945. In 1945 two pairs, with the white "Scandinavian" neck markings of *Corvus m. monedula* reared three and four young there. In 1946 three pairs, all with white neck patches, built in unused chimneys at the manse, but only one pair succeeded in rearing any young—probably after a second laying. One and a quarter miles away a pair with white neck markings bred successfully in a chimney at Kergord House and another pair, at least one of which had white neck patches, reared young in a tree nest.

We can neither find nor hear of any more breeding Jackdaws in the Shetland Isles.

Postscript. During the "Indian Summer" weather at the end of September we noted, on the two occasions we passed, three pairs of Jackdaws sitting on the three nesting-chimneys of the manse. Some, at least, of these had the white Scandinavian markings. At the same time as this Mr. Henry, the factor for the Kergord Estate, told us that a pair started carrying sticks into a chimney of his house—a few yards away from the Kergord chimney where young were reared in the summer.

REFERENCE.

HUXLEY, J. S. (1922)—"Preferential Mating in Birds with Similar Coloration in both Sexes." *Brit. Birds,* Vol. xvi, pp. 99-101.

SOME REMARKS ON THE BRITISH AND SCANDINAVIAN JACKDAWS

BY

REGINALD WAGSTAFFE AND KENNETH WILLIAMSON.
(The Yorkshire Museum).

DURING February, 1946, we received from Mr. Adam Gordon, for racial determination, three Jackdaws which had been specially selected out of a large number trapped at Helmsley, Yorkshire, because the lightness of their collars was strikingly distinct from those of the other birds. We hesitated to assign these specimens to either race, as we had then insufficient material for comparative work. Subsequently, through the kindness of the Director of the Naturhistoriska Riksmuseum, Stockholm, we were able to procure six Scandinavian Jackdaws (*Corvus m. monedula*) from the typical locality. The three birds above-mentioned, together with others taken at Helmsley on March 21st and 25th, 1946, were then compared with the Swedish examples and our own series of *Corvus m. spermologus.*

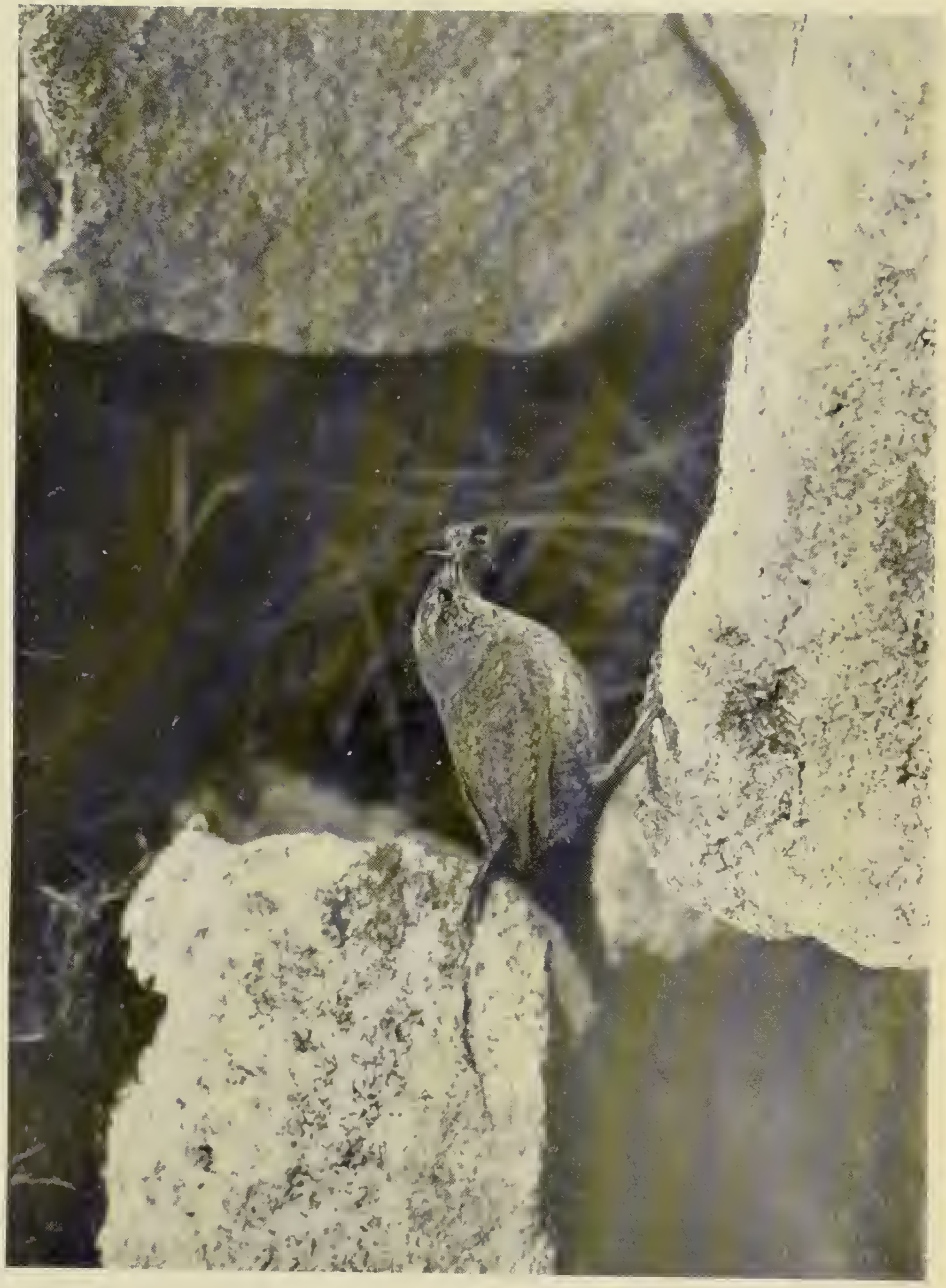
It was at once seen that all the Helmsley birds were referable to the British material, on the characters of darker upper and under-parts. The Scandinavian series present a very light appearance, more especially on the under-parts, which could be described as brownish-grey as against brownish-black with a dark blue sheen in the British birds. When viewed in an oblique light the upper-parts of the Swedish birds appeared to be suffused with a pale bluish-grey bloom. The feathers are brownish-black with extensive pale bluish-grey fringes and very little gloss, whereas those of British birds are black with strong metallic reflections, and much less extensive and darker bluish-grey fringes which practically disappear in worn plumage. In worn Scandinavian specimens the partial abrasion of the fringes serves to intensify the contrast between the brownish-black feathers and the pale edges, so that the plumage—at least in some specimens—assumes a most distinct scaly pattern.

It is apparent from an examination of this material that the collar character is not to be relied upon in separating the two races. *The Handbook* (i, p. 25) places some faith in its validity as a means of distinguishing some individuals of the Scandinavian race in the field, but in the series before us, even in the museum, it is of no practical value when considered alone. It is true that the Swedish birds, in series, show paler collars, and that, on critical examination, four of them have somewhat lighter collars than the three specially selected Helmsley birds. In the remaining two, however, the collars are appreciably darker than those of the Helmsley specimens. It is obvious that this is a most variable character individually, and in view of the facts now recorded it may be doubted whether it is tenable as a diagnostic one in the field, for even the more extreme examples of the Scandinavian type. Certainly it is not in the specimens we have examined.

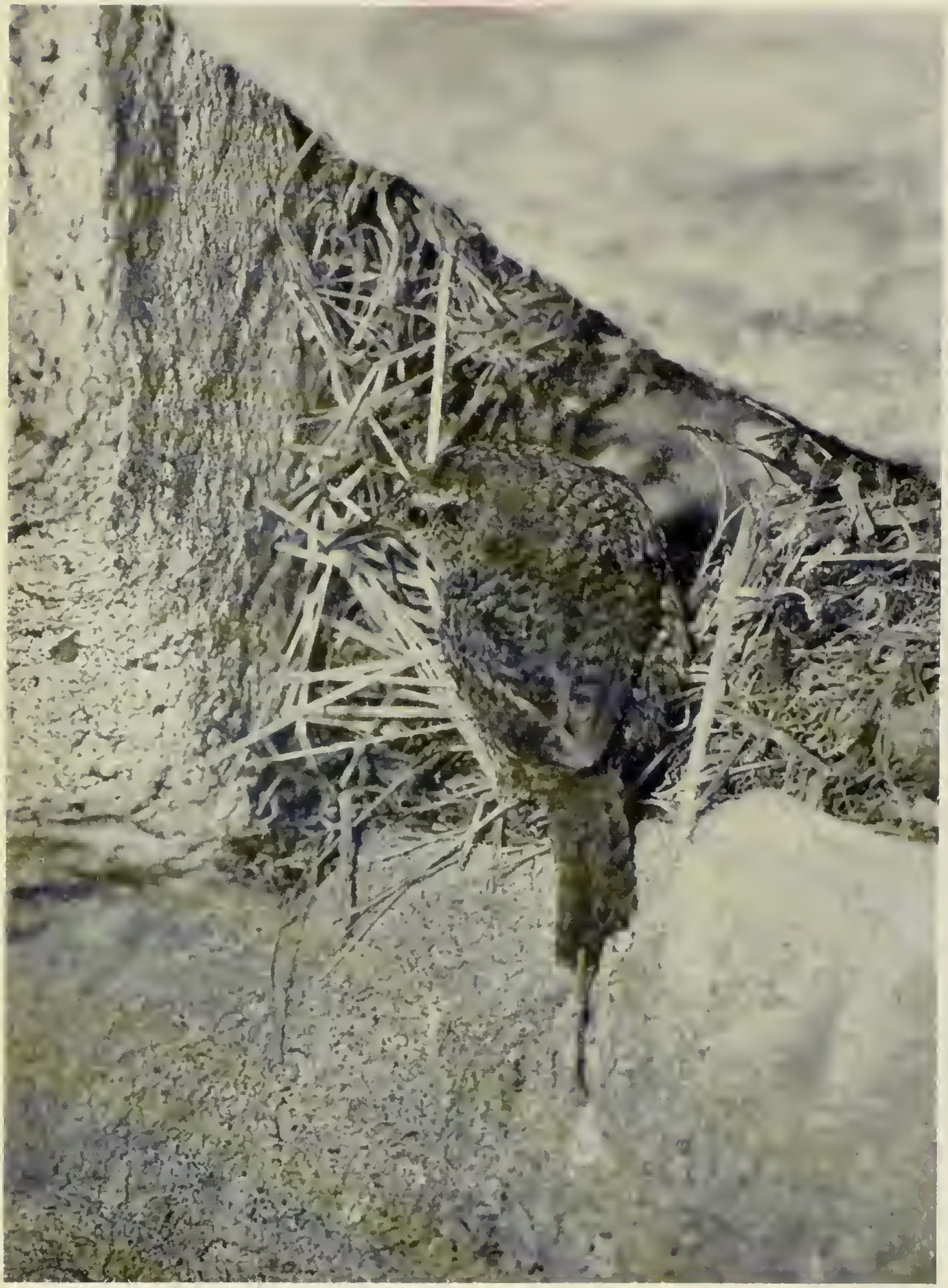
In order to satisfy ourselves fully on this point we took the specimens into the open air, in bright sunshine, and each held up specimen's for the other's observation at a distance of fifty feet. We found that under these ideal conditions, in a perfect light and with a standard of comparison, it was easy to separate the Swedish birds on the tone of the under-parts, but quite impossible to do so successfully when viewing the collar and upper-parts. On the next day the experiment was repeated in a dull, diffused light at a distance of 100 feet, with exactly the same results. In view of the fact that we were dealing with typical examples of each sub-species, and that, as is well known, intermediates exist, we consider that it would be most unwise, except under very special circumstances, to attempt the differentiation of the sub-species in the field. The special conditions might arise under rare circumstances when a near view and some standard of comparison are available, or (and this would be much more satisfactory) when the observer is familiar with the differences shown by representative series of cabinet specimens.

One bird in the Yorkshire Museum collection, a male taken by P. W. Loten at Easington, Spurn, Yorkshire, on October 30th, 1887, exactly matches the Swedish series in the tone of upper and under-parts, and despite its having a rather dark collar is clearly referable to the Scandinavian race. It would appear to constitute the first record of *Corvus m. monedula* for Yorkshire.

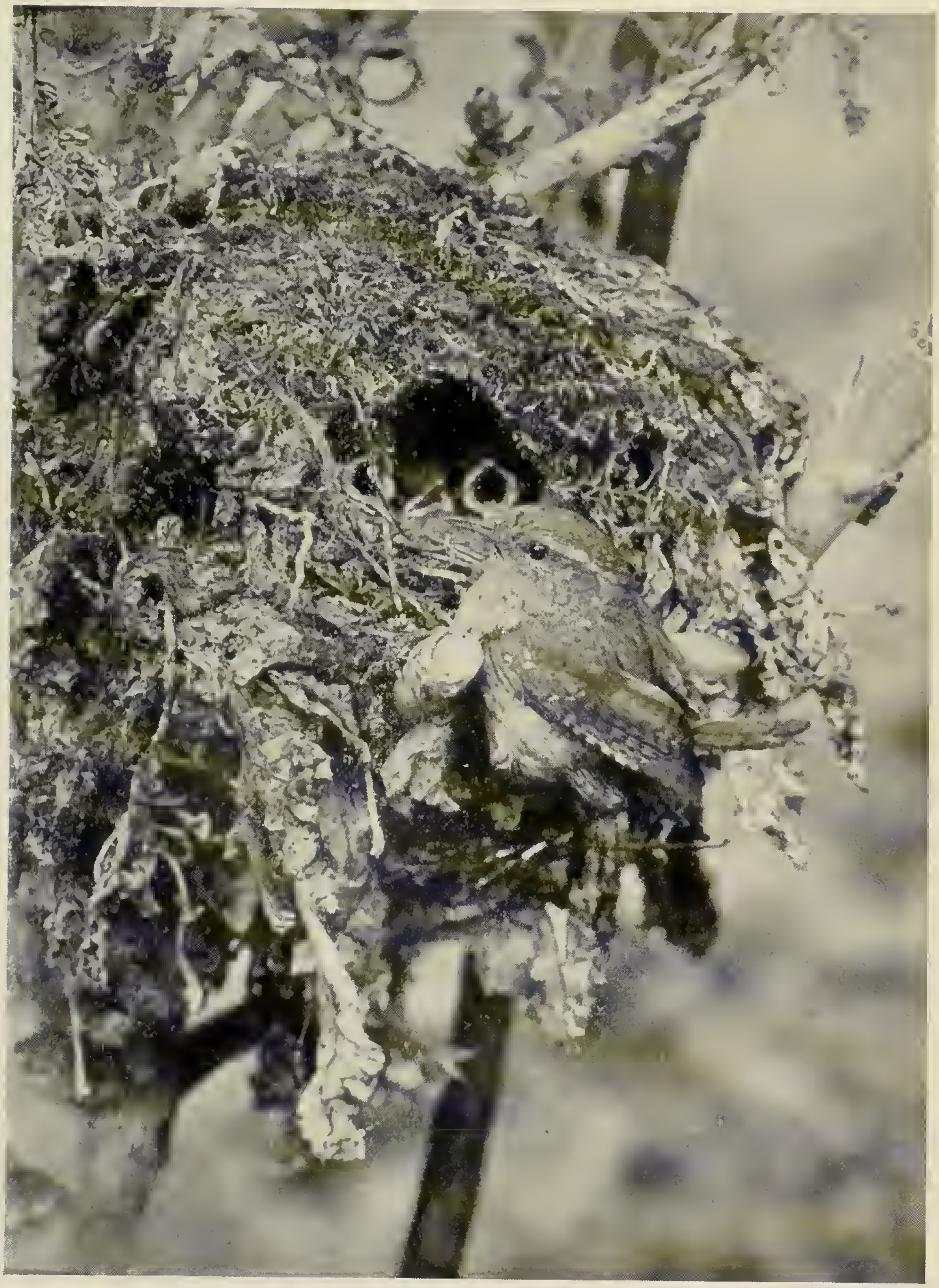
[The authors' demonstration of the occurrence of notably pale-collared birds amongst individuals of the British population is of much interest, but, as they themselves recognize, a series of six is clearly insufficient to show the full range of variation in so variable a character as the " collar. "In Scandinavia, where it is easy to examine much larger numbers in the field at close range, one finds that whereas many individuals do not appear at all different from the normal British type some have the pale collar sufficiently striking to attract the attention of any close observer at once. I should certainly be disinclined to accept a field record of *C. m. monedula* in this country except from an experienced observer acquainted with the range of variation from field experience in Scandinavia or a study of skins (or both), and in the nature of the case it is obvious that only Scandinavian birds of the more extreme type might be so recognized. It may be that even these are not identifiable in view of the new evidence from the Helmsley specimens, but the degree of difference between these last and the most extreme examples of the Scandinavian race can only be settled by the examination of a considerable series of the latter.—B.W.T.]



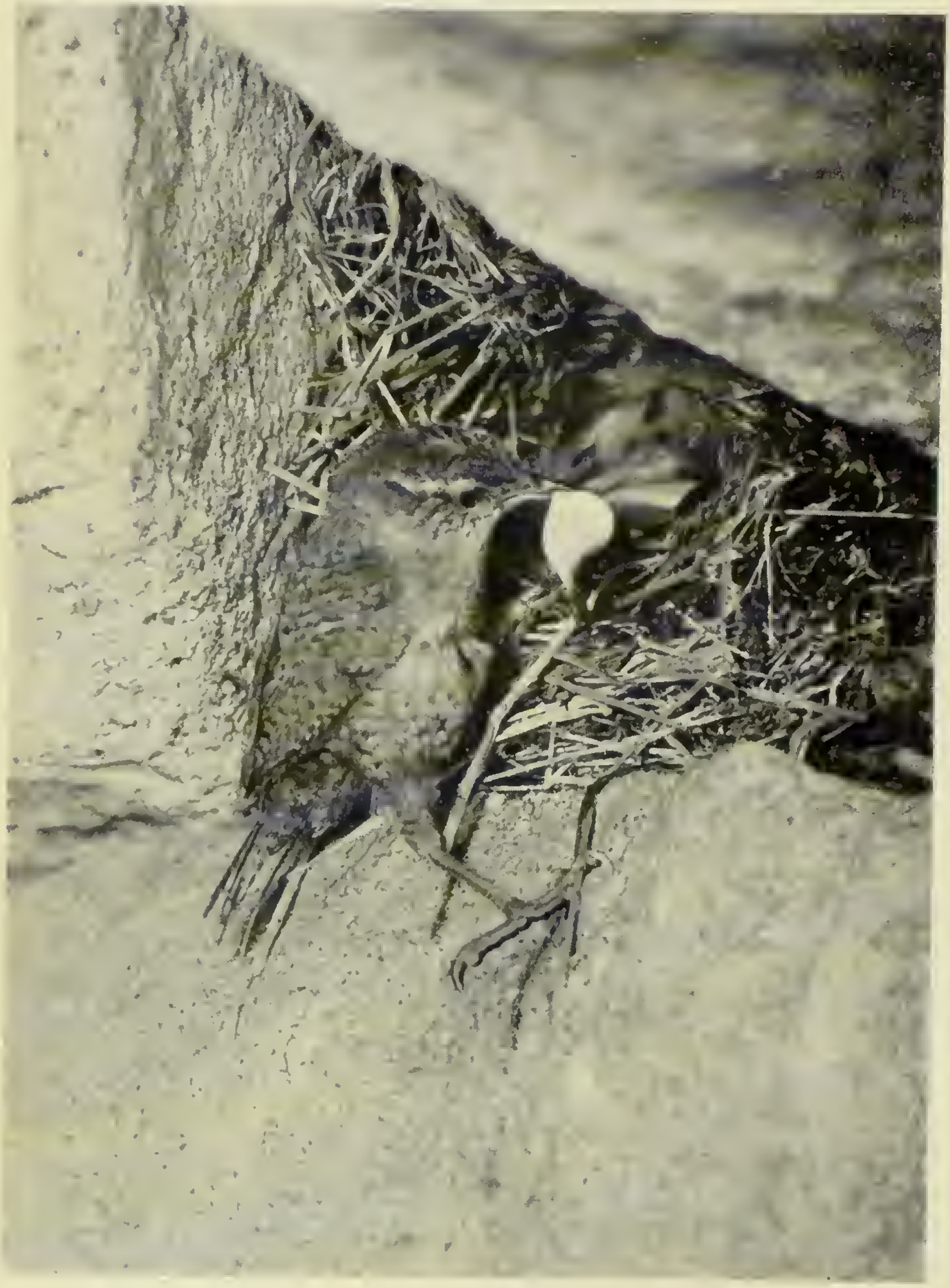
St. Kilda Wren (*Troglodytes t. hirtensis*) at nest: St. Kilda, 1938.
(*Photographed by* R. Atkinson).



ST. KILDA WREN (*Troglodytes t. hirtensis*) AT NEST: ST. KILDA, 1938.
(*Photographed by* R. Atkinson).



Common Wren (*Troglodytes t. troglodytes*) at nest.
Compare with plate 13.
(*Photographed by* Eric Hosking).



St. Kilda Wren (*Troglodytes t. hirtensis*) : nest sanitation. St. Kilda, 1938.
(*Photographed by* R. Atkinson).

STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

VI. THE ST. KILDA WREN.

Photographed by R. Atkinson.

(Plates 12, 13, 15).

The St. Kilda Wren (*Troglodytes t. hirtensis*) was the first of the insular races of British birds to be recognized as distinct from their relatives on the mainland of Great Britain. It was described as a new species by Seebohm in 1884 (*Zoologist*, 1884, p. 333) under the name of *Troglodytes hirtensis*. At this date the practice of recognizing subspecific (or racial) forms within the species had not established itself amongst British ornithologists. Seebohm, however, was among the first to appreciate its merits and himself clearly recognized that the bird would probably eventually come to be regarded as a subspecies of the Common Wren.

The St. Kilda Wren is in fact probably the best marked of all the insular races of British birds. As compared with the typical Wren, the upper-parts, though subject to some variation, are of a decidedly greyer-brown and less rufous, and are more boldly and profusely barred. The under-parts are paler and more whitish and are likewise prominently barred. It is also a trifle larger and the bill is appreciably stouter and stronger.

The ruthless traffic in skins and eggs which followed Seebohm's separation of this well-marked endemic form was such as to threaten its extinction, and in 1904 "The Wild Birds Protection (St. Kilda) Act" was specially passed to protect the St. Kilda Wren and Leach's Petrel. As a result it was quite abundant again by 1910 and its numbers appear to have been well maintained since. The most recent and detailed observations are those of Harrisson and Buchan (*Journ. Animal Ecol.*, iii, pp. 133-145 and *Scott. Nat.*, 1936, pp. 9-21), who visited the island in 1930, following its evacuation by the inhabitants in 1931. By careful counts they estimated a total of 68 pairs on the islands of St. Kilda (Hirta), Dún, Soay and Boreray. In the absence of trees or bushes the habitat differs somewhat from what would be considered normal on the mainland. The observers just quoted estimated that 82% of the birds live on the cliffs, where vegetation affords some cover. The remainder nest in buildings in the village of the main island.

Mr. Atkinson's excellent photographs were secured at the village in July-August, 1938. The two close-up views (Plates 13, 15) were taken by flashlight at a nest inside a cleit—a dry stone turf-roofed hut used when the island was inhabited for storage of hay, fuel, etc.—and the other at a nest built in the outside wall of another cleit, just under the turf eaves. Plate 14 is a photograph of a typical Wren (*Troglodytes t. troglodytes*) kindly provided by Mr. Eric Hosking. In contrast with this plate 13 shows clearly the more pronounced barrings and stronger bill of the St. Kilda form.

NOTES.

STATUS OF CORN-BUNTING IN ESSEX.

I CAN confirm Mr. T. Bispham's account of the status of the Corn-Bunting (*Emberiza c. calandra*) in south Essex (*antea*, Vol. xxxix, p. 277), but can add to his observations. In the region of the River Crouch the bird extends inland as far as Battlesbridge and Rettendon, and just before the late war I recorded singing cocks in the Chelmer Valley between Maldon and Chelmsford.

Further to the south, in the breeding-season, the bird is thinly scattered over the whole area situated north of the Thames and south of the Southend arterial road, as far west as Rainham, on the outskirts of which I recorded a singing cock both in 1945 and 1946. There have also been a few birds further to the north in the Hainault area, as has been recorded in *The London Bird Reports* of recent years.

By plotting my records on a map, I find that the distribution of the Corn-Bunting in south Essex, except for the Hainault birds, is confined to the area below the 200-foot contour. R. B. WARREN.

WOOD-LARK IN ESSEX.

ON April 6th, 1946, I watched a Wood-Lark (*Lullula a. arborea*) in frequent song over Hainault Golf Course between Cabin Hill and Dog Kennel Hill. This would not be far from where Mr. E. R. Baker recorded a pair in 1945 (*antea*, Vol. xxxviii, p. 353). Once the bird sang from the top of a small shrub, when I was able to observe it at 20 yards with glasses, and note the characteristic eye-stripe. A search failed to reveal a second bird. R. B. WARREN.

RED-BACKED SHRIKES' METHOD OF BATHING.

RED-BACKED Shrikes (*Lanius c. collurio*) very often nest in areas where there is no water at all in which they can get a bath if they wish to do so. They seem, however, to like to get a bath and I have watched them do so in a heavy shower. They are not content merely to let the rain wet the plumage. Their plan is to open the plumage and then rub against the foliage of a hawthorn, or some other bush, where it is fairly thick. This soon drenches it thoroughly. The bird then perches on a bare twig and exposes its body to wind and sun. It moves in to the shade and out again. Sometimes it faces the wind and again will turn its back to it. The wings and tail are sometimes expanded and sometimes closed. A good cleaning and preening of the plumage takes place after drying has well started. If the bird has young it will break off to catch an insect to take to the nest. J. H. OWEN.

MID-AUGUST SONG OF GARDEN-WARBLER.

ON August 18th, 1945, I saw and heard a Garden-Warbler (*Sylvia borin*) in full song in my garden at Biggleswade, Bedfordshire. The bird sang all the morning for long periods from near the top of a Horse Chestnut. The song was definitely not so loud nor so long as that of a bird singing in May or early June and closely resembled those I have heard singing in early July.

In *British Birds*, Vol. xxxvii, p. 215, the late Bertram Lloyd recorded another case of a Garden-Warbler singing full song in mid-August. C. W. TOWLER.

"INJURY-FEIGNING" OF BLACKBIRD.

THE following further note on "injury-feigning" of the Blackbird (*Turdus m. merula*) from my records may be of interest (*cf. antea*, Vol. xxix, p. 248). On May 10th, 1942, the cock bird was watched feeding a brood of young in the nest in a Leeds (Yorks) garden, when a cat appeared beneath the bush where the nest was situated. Immediately, the cock fell to the ground and fluttered "helplessly" away across the grass, keeping at times only an inch or two from the cat, which occasionally made a short unsuccessful spring at the bird. This fluttering chase went on for about 20 yards across adjacent gardens, until finally the cat was led nearly six feet up the trunk of an apple tree, where the Blackbird left it.

At no time during this performance was any cry uttered by the Blackbird, and the hen bird was not seen at all. F. M. FIRTH.

MIMICRY OF CURLEW CALL BY BLACKBIRD.

ON five occasions in the Trent Valley I have heard a Blackbird (*Turdus m. merula*) give excellent imitations of the "courlee" call from which the Curlew (*Numenius a. arquata*) takes its name (rendered as "crooee" in *The Handbook*).

June 3rd, 1945. Whilst cycling past a Blackbird, singing on a shrub at Burnaston, I was surprised to hear a single, loud "courlee" note.

June 6th, 1945. Heard a remarkable series of about six included in the song of a Blackbird perched on a telegraph post at Findern.

June 9th, 1945. A Blackbird, singing rather weakly on a telegraph post near Twyford Ferry, suddenly rendered a series of four "courlee" notes.

June 21st, 1945. Three were imitating this call at Swarkestone, incessantly between them, for over a minute, before they lapsed into mediocre song.

It is noteworthy in view of the decrease of visitant Curlews to the Repton-Ingleby area this spring, that I heard this particular note on one occasion only in 1946.

June 25th, 1946. Whilst cycling over Willington Bridge at 19.05 G.M.T., I heard a Blackbird include two consecutive "courlee" notes in his song, then saw a Curlew gliding down, about 500 yards nearer Repton Church, uttering the "bubbling" song. I cycled to within 15 yards of the ash, on a branch of which the Blackbird was singing in full view. After a few minutes of desultory song, he

rendered two excellent "courlee" notes consecutively, followed after a slight pause by a single one. The Blackbird probably saw the Curlew—he was facing in its direction—but it is most unlikely that he associated the sight of this bird with its "courlee" note. *The Handbook* mentions that this species is "occasionally imitative."
DEREK C. HULME.

[Various observers have noted imitations of the Curlew's call by Song-Thrushes, but we do not know of any previous record of such mimicry by the Blackbird.—EDS.]

NOTES ON THE BREEDING OF THE REDSTART.

THE following extracts from my notes on the breeding of the Redstart (*Phœnicurus ph. phœnicurus*) in a nesting-box, in which two successive broods were raised, may be of interest. All times quoted are British Summer Time.

The cock bird was first seen and heard in song on April 18th, 1946 ; returning home after an absence of several days, I saw the cock and hen inspecting the nesting-box on April 24th.

May 3rd, female building ; male once seen to arrive at nesting-box with beakful of building material, but was chased away by female emerging from the box. When the female left, the male entered the box and deposited the building material.

May 10th, clutch of five eggs completed before this date.

May 21st, male took butterfly in to the incubating female, but came out still with it and ate it himself.

May 24th, young probably hatched on or before this date ; hen seen to leave nest only for very short intervals, relieved by cock bird, which became exceptionally aggressive to other birds in the vicinity of the nest for this and the following day.

June 11th, young flew between 8.30 a.m. and 5.30 p.m.

June 14th, four eggs now in same nesting-box ; female seen adding feather to lining of nest. Male bird entered nest at 8.30 p.m. and remained inside ; female returned to nest, and male left it at dusk.

June 15th, clutch of five eggs completed ; female in and out of nest at short intervals.

June 18th, female in and out of nest, very agitated. Blue-bottle flies around entrance hole ; dead young bird of first brood found inside, smelling strongly, which I removed.

June 25th, female leaves nest to feed at intervals ; no sign of cock since flying of first brood.

June 28th, four young hatched by 2.30 p.m. ; male feeding young.

June 29th, all five young now hatched.

The following points of interest may be noted.

i. Male apparently assisting with nest building, even if only to deposit material at nest, May 3rd. *The Handbook* (Vol. ii, p. 180) states that the nest is "built apparently by hen only."

ii. Female normally leaves nest to feed herself during incubation; but visit of male on May 21st indicates possible exceptions.

iii. Male relieving female to brood young or incubate eggs at time of hatching. Though it was not proved that eggs hatched on May 24th, the behaviour of both birds was strongly suggestive.

iv. The finding of four eggs on June 14th, only three days after the young of the first brood had flown, suggests that the first egg was laid on the evening of the same day on which the young left the nest (June 11th). There was definitely no egg in the nest at 5.30 p.m. of that day after the young had left.

v. Possible casual brooding of incompleted clutch by male, June 14th.

vi. Steady incubation appears not to have begun until day following the laying of the last egg of the second clutch.

vii. Incubation period for second clutch, 13½-14 days, from laying to hatching of the last egg. Fledging period for first brood probably 18 days (if young hatched on May 24th) and not less than 16 days.

THEO EBBUTT.

MULTIPLE NEST-BUILDING OF BLACK REDSTART.

ON June 25th, 1946, the hen of a pair of Black Redstarts (*Phœnicurus ochrurus gibraltariensis*) was watched constructing a nest in a bombed building near Fetter Lane, London, E.C. A half-built nest was found in the fourth of a row of six similar holes in the ceiling over the first floor. The hen was seen also to take nesting material to one of the other holes, and on inspection material was found in two more.

The site was next visited on July 26th, when the nest in the fourth hole was found to contain three young. The first, second, third and sixth holes each contained varying quantities of nesting material, and an unhatched egg was found on a shapeless mass of material in the second hole. The holes were in pairs in the broken off ends of hollow tiles, with a solid tile between each pair. It is interesting to note that the "nest" with one egg was in the same relative position as the nest with three young, i.e. in the right hand hole of a pair. There were a number of other holes in the ceiling, including a similar row opposite to the six, but confusion had arisen only with those adjacent to and in a similar position to the nest.

C. B. ASHBY, F. J. HOLROYDE AND E. R. PARRINDER.

ROBINS REARING OWN YOUNG AND CUCKOO IN SAME NEST.

THE following record of a pair of Robins (*Erithacus rubecula melophilus*) rearing their own brood together with a young Cuckoo (*Cuculus c. canorus*) was sent to me by R. Coles, a member of the Kettering Natural History Society, aged 16 and a reliable observer.

The Robin's nest was situated in a hole of an elm branch, 12 inches deep and 6 inches in diameter. The nest was found with five Robin's eggs and one Cuckoo's egg on June 3rd, 1946. Four Robin's eggs were hatched on June 4th, and the Cuckoo on June

5th (the fifth Robin's egg was removed by the observer and found to be infertile).

On June 7th, Coles watched the two day old Cuckoo trying to evict the young Robins. It succeeded in raising one young about three inches up the side of the nest hole, but was quite unable to reach the entrance and fell back inside the nest, exhausted. This was watched three times in a short period. By June 8th the Cuckoo had apparently lost the eviction urge and was settled down on top of its nest companions, only the heads of which were visible.

The young Cuckoo left the nest on June 25th giving a normal fledging period of 20 days. The fledging of the Robins, however, was delayed. The observer was unable to visit the nest on the 26th and 27th, but found the young birds out of the nest on the 28th. From their condition on the 25th, he thinks that they probably fledged on the 27th, being then 23 days old, in contrast to the normal fledging age of 12-14 or 15 days. R. E. BURTON.

UNUSUAL THREAT DISPLAY OF WREN.

ON August 27th, 1946, at Kellythorpe in the East Riding of Yorkshire, a juvenile Wren (*Troglodytes t. troglodytes*) flew down on to a dead tree trunk lying in a bed of Common Reed. It at once squatted flat and opened its wings very fully and held them horizontally and twisted right forward so that the tips were about an inch from meeting across in front of its wide open beak. Its rump was thoroughly fluffed up and its tail was held sometimes vertically up and sometimes vertically down and sometimes flicking between the two. It then hopped up and down several times, rising perhaps two inches, and postured directly at a Water Vole approaching through the reeds. As the vole moved across its front the wren hopped sideways along the tree with the wings less curved forward than before, but at the end of the tree they were fully fanned out again and the hopping was repeated five times on the one spot ; then it suddenly flew away. It was silent throughout.

JOHN H. BARRETT.

[We submitted this note to the Rev. E. A. Armstrong, who is making a special study of the Wren. He informs us that he has not seen or read of any display quite like that described, so that the behaviour was perhaps abnormal, especially in respect of the silence of the bird. It seems possible that it was in the nature of a "substitute activity," such as may be evoked by extreme excitement or the thwarting of the appropriate reaction, or might, just possibly, in this case have been due to immaturity.—EDS.]

STORM SOARING OF SWIFTS.

FOR several years past, I have paid attention to the apparently little known practice of Swifts (*Apus a. apus*) soaring below thundercloud formations and since, during the last eight years, I have witnessed assemblies of these birds thus engaged on three occasions, I think the following notes may be of interest.

July 21st, 1939, 18.15 (B.S.T.) London, S.E.—A large gathering of Swifts was observed, with glasses, from my house, circling below a thunder-cloud. They were at an estimated height of 4-500 feet and appeared to gain altitude as they drifted over with the cloud. Storm passed away.

July 13th, 1941, 13.00 (D.S.T.) London, S.E.—Watched a large company of Swifts gyrating below a heavy thunder-cloud which was moving rapidly from south to north. The birds were drifting in the same direction as the cloud and rose steadily all the time despite the high wind and torrential rain which accompanied the thunder and lightning and quickly blotted them out. About 20 minutes later, when the storm had abated, I noticed the birds at a considerable height planing down, in loose order, towards the south. I further remarked that as they moved overhead with the cloud they were screaming noisily and seemed particularly agitated but, on their return, were silent.

June 22nd, 1946, 16.30 (B.S.T.) Farleigh, Surrey.—Observed a huge concourse of Swifts at a considerable height, soaring and screaming below a thunder-cloud which was building-up. They drifted over with the cloud from south-west to north-east. Very calm and sultry with a marked rise of winged insects but storm cloud eventually passed away. A few peals of distant thunder. Later, I observed the birds planing down in open order in silence towards the south-west.

As to whether Swifts indulge in this exercise out of sheer exuberance or for the more prosaic purpose of feeding is a moot point, but the ascending air currents present below thunder-cloud formations are, doubtless, appreciated by them for soaring purposes. On the other hand, it seems reasonable to assume that high flying insects are liable, at such times, to be sucked into these air vortices and thus become involuntarily drawn upward. If so, then obviously such conditions are quickly seized upon by the birds as providing a plentiful source of food supply. HUBERT E. POUNDS.

LATE SWIFT IN RUTLAND.

FROM OCTOBER 9th to 29th, 1946, a Swift (*A. a. apus*) was present at Uppingham, Rutland. It was first seen on October 9th by D. A. G. Simpson, and last seen at 9.00 a.m. on October 29th by W. D. Shackleton. It was also seen on ten intermediate dates by a number of observers, including the Rev. H. M. A. Crawshaw, D. A. Hodgkinson, Esq., J. S. H. Morrish, F. M. Boston, P. Miller and the writer.

It was noted that the bird was a poor flyer, and that several feathers were missing from the tip of the left wing; also that the white patch on the throat was very conspicuous, suggesting that it was a young bird. J. M. MCMEEKING.

(for Uppingham School Ornithological Society).

UNRECORDED NOTE OF GREAT SPOTTED WOODPECKER.

On November 4th, 1942, I caught an adult female Great Spotted Woodpecker (*Dryobates major anglicus*) roosting in a nesting-box at Hazelhurst, Sway, Hants. It uttered a very loud, high-pitched, shrill, almost bubbling trill of alarm on being handled and kept it up for about a minute—then sudden silence. This was repeated once when it was brought into the house. My wife thought it resembled a Green Woodpecker's (*Picus viridis pluvius*) "laugh," only faster and squeakier. EDWIN COHEN.

CRUSTACEAN REMAINS IN PELLETS OF KESTREL.

THERE is no reference in *The Handbook* to Crustacea forming part of the diet of the Kestrel (*Falco t. tinnunculus*) and therefore the following may be of interest.

On August 9th, 1946, I visited a post on the sea wall near Egypt Bay, Kent, which I knew to be regularly used by a Kestrel. On this day a Kestrel was perched on a shed quite near, and from the base of the post I obtained a pellet. This proved to contain, together with rodent remains, pieces of what appeared to be the shell of a crab. Through the kindness of Dr. Carmichael Low these were examined by Dr. I. Gordon at the British Museum (Natural History), who agreed that the fragments were probably from the shell of a crustacean.

On August 25th I obtained from the same place, a further, partially disintegrated, pellet which appeared to be composed mainly of crab remains.

It would appear, therefore, that this particular Kestrel, at any rate, includes crustaceans in its dietary.

I might also mention that on August 9th I put up a Kestrel from the sea-shore near Allhallows, about two miles from Egypt Bay. B. A. RICHARDS.

[The second pellet, which Mr. Richards submitted to us, contained fragments which were certainly parts of the chelae of a small crab.—EDS.]

COITION OF MALLARD ON LAND.

On March 17th, 1934, in Hyde Park, London, the weather being colder than that experienced in Yorkshire during previous days, there were showers of sleet and a strong wind. Numerous ducks were observed on the water, from time to time taking wing, flying around and returning to the water.

In particular, I observed a Mallard duck (*Anas p. platyrhyncha*) swimming rapidly, at times using her wings and feet to increase her speed. She was pursued by a number of Mallard drakes in the usual manner on such occasions, with three or four drakes fairly close to her. Eventually, when directly in front of me, the leading drake overtook the duck; he mounted her and coition took place on the water. On completion, both the duck and drake changed direction, made for the shore, and landed. The drake turned away to my left, took shelter under a low bush, and began to preen himself. The duck came directly towards me and made alongside of some vegetation within 25 yards of where I stood ; then she squatted. Meanwhile, a number of the drakes that had been pursuing the duck on the water had come on land also and followed the duck ; there were seven or eight of them more or less in a bunched line. The foremost drake mounted the squatting duck and coition took place. On completion, the drake returned to the water and the next drake in turn mounted the duck and again coition took place.

This process was repeated until five drakes had mounted the duck on land and coition had taken place . . . then the duck raised her head in the air, gave a very loud "quark" and collapsed with her head on the ground ; she appeared almost dead. The remaining drakes at once turned round and went back to the water.

After about a minute or two, the duck began to show signs of returning life; she quivered slightly; a little later she moved and eventually began to preen herself in a weak manner ; finally she stood up and then made her way slowly towards her first mate under the low bush to my left. The two squatted side by side in a most affectionate manner; they cosseted and preened themselves and each other. Finally, they dozed. W. W. NICHOLAS.

WADERS IN OUTER HEBRIDES.

ON September 6th, 1946, I had the good fortune to find the following waders, which are unusual visitors to the Outer Hebrides, present on the Traigh Mhor, a large beach on the isle of Barra—one each of Knot (*Calidris c. canutus*), Little Stint (*Calidris minuta*) and Ruff (*Philomachus pugnax*). The Knot was almost in complete winter plumage, while the Little Stint was in summer dress.

There seemed to be a particularly large wader migration going through on that day including *c.* 250 Sanderling (*Crocethia alba*), *c.* 100 Ringed Plover (*Charadrius h. hiaticula*), a few Dunlins (*Calidris alpina*) and 15 or 20 Bar-tailed Godwits (*Limosa l. lapponica*)—most of which had disappeared by that evening.

On the following day and again on the 8th, two Little Stints were noted by me on the same beach. I. J. FERGUSON LEES.

RED-BREASTED SNIPE IN KENT.

ON October 9th, 1946, J.S.S.B. obtained views of a Red-breasted Snipe (*Limnodromus griseus*) at a marshy pool near Brookland, Kent. It was seen at close quarters under excellent light conditions, with three Greenshank.

On October 13th, E.A.B. and G.E.M. visited the same marsh and watched the bird at close quarters again consorting with three Greenshank. Again on October 19th, E.A.B. saw the bird at the same spot and had excellent views of it. The following is a description of the bird :—

Size about that of a Redshank, but not so long in the leg when seen on the ground. Bill long and snipe-like ; dark brown or black, shading lighter towards the base ; held downwards in flight and at about 45° to the ground level when at rest. When feeding the bill was immersed in the water to the fullest extent, but at no time was the head submerged. Legs olive brown. Crown dark-brown with the rest of upper parts ashy-brown, showing paler margins to the feathers. Back showing triangular patch of white in flight, but not extending into the rump which appeared grey in flight. White eye-stripe above a dark stripe through the eye. Rest of sides of head, chin, throat, breast and belly flecked with brown—the darkest area being on the throat and the lightest on the belly, but nowhere as light as the Greenshanks seen with it. Flanks indistinctly barred with brown but distinct barring on under tail-coverts. Tail appearing same colour as rest of upper-parts and showing no noticeable patterning in flight.

Two distinct calls were heard, an un-musical "cheerit-it-it-it-tit" quickly uttered when flushed, and a monosyllabic "tcheek" uttered whilst in undisturbed flight. When flushed it towered rather like a Green Sandpiper, developing a steady flight with fast moving wings.

The bird frequented the edges of the open marshy pools, avoiding the sedge and cover of adjacent areas. When disturbed on one occasion the bird momentarily settled in some short sedge, returning to the more open habitat. When feeding it waded into the water until two-thirds of its legs were covered. An area parallel to the edge of the pool was chosen and slowly and deliberately searched.

J. S. S. BEESLEY, E. A. BLAKE, G. E. MANSER.

BROAD-BILLED SANDPIPERS IN FIFE AND HERTFORDSHIRE.

ON September 9th, 1946, we had an excellent view of a Broad-billed Sandpiper (*Limicola f. falcinellus*) by the estuary of the Eden. It was alone and extraordinarily tame, allowing us to sit within a few yards of it for a long time. It was very dark in colour on the back with paler edgings to the feathers, black rump, leaden black legs and dark bill slightly decurved. The under-parts were white, throat and breast with dark streaks. It did not appear to stand as high on the leg as a Dunlin. When it flew away it twice uttered a curious shrill single note. The previous Scottish occurrence is from a locality only a few miles away. About the same date we had an arrival of Little Stints (*Calidris minuta*) and Curlew-Sandpipers (*C. testacea*), neither being very common on the Fife coast. EVELYN V. BAXTER AND LEONORA JEFFREY RINTOUL.

ON October 6th, 1946 I saw a Broad-billed Sandpiper (*Limicola f. falcinellus*) on the edge of Wilstone Reservoir, Hertfordshire. It was extremely tame and was viewed at close range through a good telescope (x 25) in sunlight. It was a dumpy bird bigger than a Little Stint (*Calidris minuta*), similar in size to a small Dunlin (*Calidris alpina*) but with longer bill than the latter. Bill down-curved, particularly from half length of bill to the tip. Legs short, black in colour. Hind toe well developed and when the bird perched for a short time on a small flat stone, the hind toes were in contact with and seemed to be pressing on the rear edge of the stone. Eye-stripe white slightly tinged buff, upper-parts dark with feathers edged buff on the back, pronounced streaked effect. On wing-coverts feathers dark (blackish) edged with greyish-white. Under-parts:—throat and breast suffused with buff with dark streaks particularly at the sides ; rest of under-parts very white, streaked on flank. In flight no wing-bar ; upper tail-coverts white on outside with dark centre ; outer tail-feathers not white, but pale. Call in flight—"trri trree trri," rather fuller than the call of the Little Stint. Movements much more placid and unhurried than those of other waders of similar size. Feeding by shallow probing.

W. E. ALMOND.

ICELAND REDSHANK IN LANCASHIRE.

As there is only one record of the Iceland Redshank (*Tringa totanus robusta*) for Lancashire, namely, a bird obtained by R. A. H. Coombes on the Megazine Scar off Barrow-in-Furness on October 21st, 1933, with a wing measurement of 171 mm., it seems advisable to record two further examples of this race recently obtained in the county.

Two female specimens in transitional moult from juvenile to first winter plumage obtained at Banks, Ribble estuary, Lancashire, on September 15th, 1946, are, on account of their stout proportions and long wings (171, 174.5 mm.), clearly referable to the Iceland race, and constitute second and third county records.

A third female in complete first winter dress, same date and locality, wing 161 mm., although noticeably dark on the mantle, seems best assigned to the British race, *T. t. britannica*.

P. A. CLANCEY.

KENTISH PLOVER IN NORTH KENT AND ESSEX.

On August 25th, 1946, Dr. and Mrs. J. D. Mills, Mr. E. M. Manser and I watched a Kentish Plover (*Leucopolius a. alexandrinus*) at the mouth of the Thames. The bird was under observation for some time, its black legs being clearly visible. Side by side comparison with an immature Ringed Plover was obtained. The bird was flushed on two occasions and the dark central tail feathers contrasted with the light outer ones were noted.

While putting this bird on record I would add, that on May 1st, 1932, I watched a bird in breeding plumage at very close quarters along the shore at Maldon in Essex.

E. H. GILLHAM.

THE YOUNG GUILLEMOT'S FLIGHT TO THE SEA.

Probably the most spectacular portion of the famous bird-cliffs at Noss, in the Shetland Islands, is the south face of the Noup. Rising 592 feet sheer from the sea, this magnificent mass of old red sandstone, with its numerous ledges, crevices and deeply pitted surface, is the breeding place of many thousands of sea birds. Of these, roughly ten thousand are Northern Guillemots (*Uria a. aalge*).

With kindred spirits I had paid many visits, before the late war, to the turbulent waters beneath this cliff, in the hope that we might witness something of the young guillemot's flight to the sea. Always we were disappointed. We did not then know, what Messrs. Perry and Lockley later discovered, that this activity only takes place at night. With this fuller knowledge we tried again on July 10th, 1946, when we lay afloat from 9 p.m. till 5 a.m. next morning. On this occasion five young birds plumped down, more or less vertically, and were gobbled up almost immediately by the gulls in attendance ; two by Herring-Gulls (*Larus a. argentatus*) and three by Great Black-backed Gulls (*Larus marinus*). It was evident that our visit was too early in the season and that these birds had come down prematurely and doubtless by accident. On the evening of July 21st, however, we were more fortunate. Weather and tidal conditions, on this occasion, were such that, from 8 p.m. till 11 p.m., my boat lay to an anchor, approximately 60 yards from the foot of the cliff. During these three hours roughly 300 young Guillemots and about a dozen young Razorbills (*Alca torda britannica*) flew down to the sea. The peak period was round about 10 o'clock. The large majority of these young birds flew down each accompanied by one parent, the youngster flying from three to six feet in advance of, or to the side of, the adult. Both alighted on the water in the usual guillemot splash fashion, then immediately rushed towards each other, the parent calling loudly and excitedly ; evidently fully aware of the danger in separation. With numbers of gulls hovering near, there was every reason for this anxiety. Both birds now swam leisurely towards the open sea, the young bird very close to its parent's side. A few of the young ones were accompanied on their flight by two adults, presumably both parents. A number came down alone, and, of these, only a small percentage found a parent on the water, the others being taken by the gulls. These solitary birds on alighting, swam round in circles with head high and breast well out of the water, calling loudly the while. Their white breasts were conspicuous in the dusk and, while this may have aided parents in finding their young, it equally aided the gulls in their depredations. These youngsters dived smartly at first, in evading the gulls, but, unless a parent arrived quickly on the scene, their survival was impossible. In my opinion, it is abnormal for young birds to go down alone. It is most unlikely that they could direct themselves from ledges 200 to 500 feet above the sea, to one adult, amongst hundreds, on the water. The fact that some did find parents on the water may be explained by the possibility of birds from the lower ledges, 30 to 50 feet above the sea, recognizing the voice of a parent at such short range and directing themselves towards the voice. There is again the possibility of an unattached adult adopting a young one as is the case with Eiders.

In view of the fact that their wings lacked both primaries and secondaries, it was astonishing how well these little birds could fly. I should say that the average bird came down at an angle of 45 to 50 degrees from the vertical. One bird, accompanied by both parents, alighted at least 200 yards from the cliff foot and its flight made an angle from the vertical of certainly over 60 degrees. It was noted that one of the good fliers was a Razorbill. Only one bird was seen to drop on to a rock shelf near sea level ; it had probably come from one of the lowest ledges. Here, hesitation meant a quick death, but the young bird got on its feet in an instant, ran to the edge and jumped into the sea where the old bird had preceded it.

There was no evidence whatever that young birds require assistance in getting down to the sea. G. T. KAY.

CAPERCAILLIE DISPLAYING IN SEPTEMBER.

ON September 10th, 1946, my brother and myself observed two cock Capercaillies (*Tetrao u. urogallus*) going through a form of display. The first bird was observed strutting across the top of an open sand dune, with tail erected, and wings trailing on the ground. We kept it under observation and saw it perform this display twice more—both times on an open patch of sand after it had passed through intervening belts of pine trees. It emitted, at irregular and fairly long intervals a part of the song—a double gargling croak. It made this sound several times in fairly rapid succession while on a dune and while displaying, but was silent as it passed through the intervening belts of trees. Observation of the tracks of this bird indicated that it had trekked over open sand-dunes for about 200 yards to reach its display ground, where it went through the above performance in three places about fifty yards apart. The tracks also disclosed that at the first display ground it had walked in a circle and jumped into the air, though we did not see it do so.

The second bird was displaying on an open grassy glade among pine woods of considerable age. It was seen when it bounded into the air, which it was observed to do several times. We were unable to observe this bird for any length of time, as a hen, which was sitting in a pine tree above the display ground, saw us and flew off, after which there was no further sign of the cock. We heard no sound from this second cock, but from the short time we had him under observation it appeared that he was performing a more vigorous display than the first. No doubt this is accounted for by the presence of the hen. No hen was observed in the vicinity of the first cock's display ground.

Neither of the cock Capercaillies flew away. They must both have walked off into thick pine cover nearby when they became suspicious.

The first cock was observed between 3 and 3.30 p.m. and the second at about 4.45 p.m. (Summer time).

It would appear that this is an unusual observation both in regard to the time of day and also the time of year, since *The Handbook* does not mention display in this country in September, and the middle of the afternoon appears to be about the most unlikely time to observe display in this species, whether in spring or autumn. LESLIE H. BROWN.

[As mentioned in *The Handbook*, display is occasionally observed in September and October. So far as we are aware the full display has seldom been observed in Britain, even in spring.—EDS.]

CARRION CROW TAKING FOOD OFF WATER.—*The Handbook* does not refer to the habit of the Carrion-Crow (*Corvus c. corone*) of taking food from water. Mr. F. C. Bromley informs us that on May 11th, 1946, he saw a Carrion Crow hovering clumsily over Hamper Mill Lake, Herts., and, after one unsuccessful attempt, dropping to snatch something from the surface, probably in the bill. This is a regular habit of the species on the Lake of Geneva, but does not appear to have been previously recorded in this country.

JACKDAW'S NEST WITH TEN EGGS.—Further to Mr. B. A. B. Thompson's note under this heading (*antea*, Vol. xxxix, p. 254), Mr. P. J. B. Morton reports another nest of a Jackdaw (*Corvus monedula spermologus*) containing ten eggs. The nest was found on April 30th, 1946, near Peterborough, Northants, and was situated in a hole of a walnut tree. On the same date in 1945 a clutch of eight eggs was found within two hundred yards of the 1946 site.

LATE SPOTTED FLYCATCHER IN ISLE OF WIGHT.—Mrs. G. K. L. Hopkinson reports a Spotted Flycatcher (*Muscicapa s. striata*) in a garden at Freshwater Bay, Isle of Wight, on October 28th, 1946. Identification was quite definite and the bird was watched at close range.

FIRECREST IN SURREY.—Mr. K. R. Chandler gives us details of a Firecrest (*Regulus i. ignicapillus*) watched by him on the North Downs at Titsey, Surrey, on October 13th, 1946. The bird was feeding in hawthorn bushes and kept to itself despite the presence of a flock of tits in the vicinity.

BLACKBIRD REARING THREE BROODS IN SAME NEST.—We have received from Mr. Fred Dean particulars of a pair of Blackbirds (*Turdus m. merula*) which successfully reared three broods in the same nest in 1944. There was no mistaking this pair, the only one in a small garden in Yorkshire, for the cock was piebald and the hen unusally tame. It appears that nest-sites were limited within the garden, and it was normal for two sites to be used in alternate years ; a single nest being used repeatedly for successive broods in one season. Both the two nests were built in small dense holly bushes.

Mr. F. C. Bromley has also informed us of a pair raising three successive broods in the same nest at Sculthorpe, Norfolk, in 1946. Although two broods in one nest is not uncommon, and even four have been recorded (*antea*, p. 85, and Vol. xxxix, p. 343), three is decidedly unusual.

BLACKBIRD SINGING IN OCTOBER AND NOVEMBER.—Mr. I. Kimbrey's note on a Blackbird (*Turdus m. merula*) singing in November (*antea*, Vol. xxxix, p. 320) has prompted several further reports of song in October and November. Mr. Hubert E. Pounds sends the following records : daybreak, October 31st, November 8th, 13th and 21st, 1929, Herne Hill, London, and 8.30 a.m. (B.S.T.) November 21st, 1942, near Penarth, Glamorganshire. The last was a really sustained performance, the morning being mild and sunny. Mr. E. MacAlister writes : In November, 1944, Blackbirds were singing in many southern counties. One sang every afternoon for about a fortnight in a garden in Winchester, generally beginning its song about 3 p.m. Others were seen and heard singing in Hazlemere. An unusual experience was hearing a Blackbird singing most beautifully in brilliant sunshine in a Kensington garden one Christmas day in the 1930's at about 12.30 p.m. Within less than five minutes the whole district was enveloped in a thick black fog, which lasted for the rest of the day. Mr. Alan F. Airey reports a Blackbird heard giving the full song several times on December 11th, 1944, at St. Annes-on-Sea, Lancashire, and full song from two different birds on December 12th, 1942. Mr. Airey also mentions sub-song heard on December 7th, 1944, and December 9th, 1942, but this is not so unusual.

CLIFF-BREEDING OF HOUSE MARTIN.—Mr. P. Wayre reports three cliff-breeding sites of the House-Martin (*Delichon u. urbica*) on the Kincardineshire coast between Montrose and Stonehaven, in July, 1946. One colony contained ten nests, most of which were in use, and others consisted of two and three nests. F. C. R. Jourdain and H. F. Witherby in their report on cliff-breeding sites (*antea*, Vol. xxxiii, pp. 16-24) had no recent data for this area, though Sim (*Vertebrate Fauna of Dee*, 1903) mentioned such a site on the Kircardineshire coast.

LATE SAND-MARTIN IN PEMBROKESHIRE.—Mr. T. A. W. Davis records a Sand-Martin (*Riparia r. riparia*) on October 24th, 1946, seen flying steadily south at about 30 ft. above the east shore of Dale Roads, West Pembrokeshire, at dawn. The weather was fine with a light north-east breeze.

LATE DRUMMING OF GREAT SPOTTED WOODPECKER.—Previous notes (*antea*, Vol. xxxvii, pp. 160, 178 and 218 ; Vol. xxxviii, p. 80 ; Vol. xxxix, pp. 64, 254) prolonging the drumming-period of the Great Spotted Woodpecker (*Dryobates major anglicus*) as given in Mr. H. G. Alexander's table reproduced in *The Handbook*, have indicated a slight recrudescence of drumming in autumn months. Mr. S. Sporne writes that he heard drumming in the New Forest from July 8th to 21st (every day), on August 31st and on September 5th, 14th, 17th and 18th, 1946. Drumming is thus now recorded for every month of the year.

KESTREL ATTACKING SQUIRREL.—Miss J. Caldwell reports a case of a female or immature male Kestrel (*Falco t. tinnunculus*) attacking a Red Squirrel, on July 4th, 1946, in Flintshire. The squirrel ran across a woodland path and climbed a near-by tree ; it was quickly followed by the hawk crashing through the branches from above. The Kestrel made an ineffective grab at the squirrel on the tree as it passed and then landed on the ground, where it was identified.

SPOONBILL IN DEVON.—We understand from Mr. R. G. Adams that the Spoonbill (*Platalea l. leucorodia*) mentioned in Vol. xxxix, p. 223, remained alone on the Exe estuary till two more appeared on April 26th, 1946 ; the three remained together until at least July 17th. On July 21st there was only one Spoonbill on the estuary. On March 3rd, Mr. H. Bentham saw two adults on the Teign, about two miles up the river from Teignmouth ; and Mr. K. C. Searle saw the single bird on the Exe on March 23rd. A single bird was seen again by Mr. Adams on the Exe estuary on September 26th and 29th, and two are reported at Dawlish Warren on October 20th by R. W. H. Nind and P. R. Freeth.

BEAN-GOOSE IN LANCASHIRE IN AUGUST.—Messrs. E. A. Croft and W. H. Cross report an adult Bean-Goose (*Anser f. fabalis*), which from particulars and a sketch submitted to us was evidently correctly identified, seen by them on the Mersey at Didsbury, on August 27th, 1946, in company with a Mute Swan. It was resting on the opposite side of the river and appeared very fatigued. September is the earliest date given for arrival in *The Handbook*, and the observers suggest that it may possibly have summered in this country ; but although wild geese are sometimes much more approachable when seen singly than in flocks, the circumstances suggest that the bird may have been an escape.

WATER-RAIL AS PREY OF SHORT-EARED OWL.—Capt. H. A. Gilbert informs us that on October 30th, 1946, he flushed a Short-eared Owl (*Asio f. flammeus*) off a freshly killed and half-eaten Water-Rail (*Rallus a. aquaticus*) on the island of Sanday, Orkney. The Water-Rail is a common bird in the boggy parts of Sanday.

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SONG VARIANTS IN THE YELLOWHAMMER

BY

J. S. HUXLEY.

I REMEMBER as a young man being struck by hearing a Yellowhammer (*Emberiza c. citrinella*) change from one song-type to another and markedly different one, but I never pursued the matter until I noted it again during the last days of my stay near Dinas Cross, Pembrokeshire, in July, 1945. On consulting *The Handbook*, I found that the matter was insufficiently dealt with there, and decided to make some further observations. The following brief notes made near Dinas Cross between July 21st and August 4th, 1946, are a beginning in this direction.

The Handbook simply states " *Song* a single phrase consisting of tinkling repetition of same high-pitched note followed by a more prolonged one, roughly suggested by traditional ' Little bit of bread and no cheese ' (or ' tintintintintink-swee '), sometimes the ' cheese ' higher pitched than rest, when emphasis is on it, sometimes the reverse, when emphasis is more on penultimate syllable : ' cheese ' sometimes omitted."

This description is true for certain forms of song (see below). However, I have always regarded the typical form of the "Little bit of bread and no cheese" song as one in which the *second part* of the song, as I shall call it, consists of *two* notes, not one, constituting the *no cheese* with the emphasis on the *no* (and usually, though not always, the *no* higher, the *cheese* lower than the repeated note). In any case, this type with two distinctive notes at the end (*no* cheese) is apparently as common as that with one only (no *cheese*).

The Handbook further states that the first part of the song consists of a repetition of the " same high-pitched note." This requires some amplification. It is true that the note is usually the same in any single phrase, though in one variant, which I recollect hearing elsewhere, the pitch rises slightly but steadily throughout this part ; but it need *not* be the same in different phrases, even of the same bird. Secondly, the pitch may vary quite markedly, so that it should be quite easy to distinguish relatively high-, low- and medium-pitched songs ; but accurate observations on the extent of the variation should be made by someone equipped with an ear for absolute pitch, or a pitch-pipe. And thirdly, it varies markedly both in quality and tempo. At one extreme (which is relatively uncommon) the notes are run together so as almost to make a single trill. The commonest form consists of simple clear-cut notes, fairly quickly repeated. The next commonest consists of obviously compound or slurred notes given more slowly. And there is also a fourth type, intermediate between the two last, both in sharpness and singleness of note and in tempo.

I have also heard variations in timbre. Thus one bird gave this last (intermediate) type with a twanging sound. As previously stated, my recollection is clear of having heard first parts which ascended slightly in pitch; but I noted none of these in 1946.

As regards the second part of the song, while it is quite true, as *The Handbook* states, that the final note may be higher or lower than the first part, this by no means exhausts the variations to be heard. I have been able to distinguish the following types.

A. No "second part" of song at all. This may merely be due to failure to complete the song (which I think may be of any of the later types), especially since in such cases the first part may consist of abnormally few notes; on the other hand, in one case (Bird 1 below) this variant, though with only three notes in the whole song, was given eight times in succession, and in another case (with the normal number of notes—around five or six) 16 times.

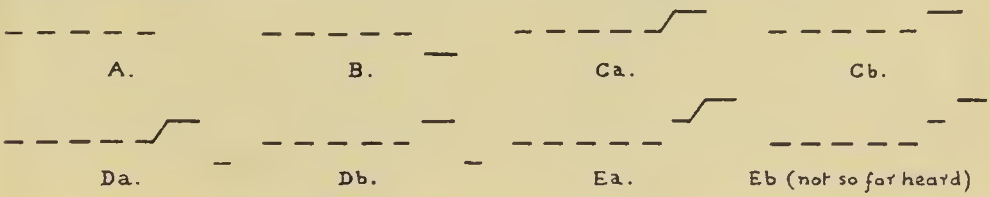
B. Second part of song consists of one note, of *lower* pitch than first part.

C. Second part consists of one note, of *higher* pitch than first part.
  (*a*) the last note is given glissando (see below).
  (*b*) the last note is natural (not glissando).

D. Second part consists of two notes, first of higher, second of lower pitch than first part ("Little bit of bread and *no* cheese" song).
  (*a*) with a glissando note.
  (*b*) without a glissando note.

E. Second part consists of two notes, both higher in pitch than the first part, and the second higher than the first.
  (*a*) with a glissando note
  (*b*) so far not heard [without a glissando note].

As indicated above, C, D, and perhaps E can exist in two distinct sub-types (*a*) with one note making the impression of being "squeezed out," and given in a *glissando* from the previous note; (*b*) with no glissando note, the note in question being of normal type, and separate from the one before. In D, when the glissando note is given, it is the *first* of the two notes of the second part, while in E it is the *second*. This, together with the fact that I have never heard this glissando note in type B, seems to indicate that the glissando is given only when the note is higher in pitch than the previous note. In type E, I have only heard the sub-type with a "squeezed" (glissando) note, so far not with two single separate notes. Graphically, these types may be expressed thus:—



As regards the first part of the song, we may symbolize the variants as follows :—

I	all notes at the same pitch.
II	slightly ascending in pitch.
1	notes run together into an almost continuous trill.
2	notes simple, clear-cut.
3	notes slightly compound (intermediate between 2 and 4).
4	notes definitely compound.
i	high in pitch.
ii	intermediate in pitch.
iii	low in pitch.

In addition the number of notes may vary. Though it is hard to count them accurately, the usual number seems to be five ; but I have heard from three to about seven or eight.

Thus to categorize the first part fully we should require three symbols—e.g. I 4 ii, II 3 iii. However, in what follows I shall usually be using only the categories 1-4, since all songs heard were of type I, and in most cases I did not attempt to note the pitch.

To conclude I will give some examples of actual observations of individual birds. Categorization of song-variant is given thus :— " 4.B," or " 2i.Cb," or " 3.Ea." In addition, the number of repetitions of each variant is given in brackets after the song type, thus :—4.B—(15) ; or 2i.Cb—(6).

4. *Bird* 1 :— 4ii.Cb—(10 or more) ; 2i.Cb—(?) ; 2i.D—(7) ; 4ii.Cb—(15) ; 4ii.A—(8) ; flew off.

3. *Bird* 2 :— 2.Ca—(?) ; 2.Da—(?) ; 2.B—(?) ; 2.Ca—(1) ; 2.Da—(1) ; 2.Ca—(2) ; 2.Da—(7) ; 2.B—(2) ; 2.Ca—(1) ; 2.B—(5) ; 2.A—(3) ; 2.Da—(13) ; stopped singing. The last 28 songs were given at an average rate of 10.7 seconds per song.

Bird 3 :— 2.B. *Bird* 4. 2.Eb. *Bird* 5. 1.C. *Bird* 6. 2.B.

Bird 7 :— 2.B—(?) ; 2.C—(?) ; 2.Ea—(?) ; 4.A—(5) ; 4.Db—(?).

Bird 8 :— 3.B—(11) ; 4.A—(1) ; 3.A—(16) ; 3.B (with twanging timbre)—(3). Average rate, 11.3 seconds per song.

These few examples give some idea of the range of variation to be found both in single birds (three and even four variants), and between different birds. It cannot yet be stated whether only certain combinations of variants are given by particular birds. In any case, the significance of the co-existence of sharply-marked song-variants in a single bird, and the problem of their evolutionary origin, are both very obscure. I know of no other quite similar case, where the variations are all obviously on a general theme. The Wood-Warbler (*Phylloscopus sibilatrix*) gives two wholly distinct *types* of song ; birds like the Song-Thrush (*Turdus ericetorum*) improvise many different phrases. I hope that this note will draw attention to the need for further investigation (e.g. with reference to geographical variation) of this interesting problem.

FLEDGING-PERIODS OF THE RAZORBILL, GUILLEMOT AND KITTIWAKE

BY

J. KEIGHLEY AND R. M. LOCKLEY.

DURING the summer of 1946, observations were carried out by the writers on breeding-colonies of the Razorbill (*Alca torda britannica*), the Guillemot (*Uria aalge albionis*), and the Kittiwake (*Rissa t. tridactyla*). We are indebted to the West Wales Field Society for the facilities provided at the field study station which the Society had established experimentally on Skomer Island in 1946, and for permission to use data from the Society's records made there.

The main object of this study was to check the fledging-periods of the three species. The observations recorded by Perry on Lundy Island (Perry, 1940), and quoted in *The Handbook* (Witherby, 1941), have not been entirely consistent with those of Lockley, also quoted in *The Handbook*.

The sites selected for observation were small colonies situated on the north coast of Skomer Island, where the three species had laid their eggs on exposed ledges, thus enabling the writers to study them easily from certain established watching posts. Sketch-maps were made of each colony, and the nesting-sites numbered. Where accessible the chicks were ringed when old enough.

THE RAZORBILL.

Nest No.	*Date began*	*Observation and nest contents*	*Other observations*	*Fledging Period in days*
RA. 1.	July 1st	Clean warm egg	Egg vanished July 5th	
RA. 2.	,,	Chick *c.* 4 days old	Chick gone July 11th Many of its feathers on ledge	
RA. 3.	,,	Chick *c.* 2 days old	Chick vanished July 3rd	
RB. 1.	,,	Chick *c.* 4 days old	Chick vanished July 7th	
RB. 2.	,,	Chick *c.* 4 days old	Chick vanished July 10th. Many feathers on ledge	
RB. 3.	,,	Chick one day old	Chick flew to sea July 17th	17
RB. 4.	,,	Chick *c.* 3 days old	Chick gone to sea July 15th	17±1
RB. 5.	,,	Chick *c.* 5 days old	Chick gone to sea July 12th	16±1
RB. 6.	,,	Warm egg, hatched on July 2nd	Chick gone to sea July 12th	10
RB. 7.	July 3rd	Warm egg, hatched July 6th	Chick gone to sea July 24th	18
RB. 8.	,,	Chick *c.* 6 days old	Chick gone to sea July 9th	12±1
RB. 9.	,,	Chick 2 days old.	Chick gone to sea July 18th	17

Nest No.	*Date began*	*Observation and nest contents*	*Other observations*	*Fledging Period in days*
RB. 10.	July 5th	Chick *c.* 8 days old	Chick gone to sea July 11th	14±1 or 2
RB. 11.	July 7th	Chick *c.* 11 days old	Chick gone to sea July 11th	15±1 or 2
RC. 1.	July 8th	Warm egg	Egg vanished July 10th	
RC. 2.	,,	Chick *c.* 6 days old	Chick gone to sea July 18th	16±1
RC. 3.	,,	Chick just hatched	Chick vanished not feathered, July 18th	
RC. 4.	,,	Chick *c.* 6 days old	Chick killed July 17th (Leg-ring recovered G.B.B. pellet, July 18th)	
RC. 5.	,,	Chick *c.* 8 days old	Chick gone to sea July 14th	14±1 or 2
RC. 6.	,,	Chick one day old	Chick gone to sea July 22nd	15
RD. 1.	,,	Chick *c.* 5 days old	Chick gone to sea July 14th	11±1
RD. 2.	,,	Chick *c.* 12 days old (well feathered)	Chick gone to sea July 10th	14±1 or 2
RE. 1.	,,	Chick *c.* 6 days old	Chick gone to sea July 20th	18±1
RE. 2.	,,	Warm egg, hatched July 9th	Chick gone to sea July 26th	17

Number of chicks ringed—18.

THE GUILLEMOT.

GA. 1.	July 1st	Warm egg	Egg vanished July 5th	
GA. 2.	,,	Warm egg	Egg vanished July 7th	
GB. 1.	,,	Warm egg, hatched July 2nd	Chick vanished, not feathered, July 15th	
GB. 2.	,,	Warm egg	Egg vanished July 3rd	
GB. 3.	,,	Warm egg	Egg vanished July 3rd	
GC. 1.	,,	Chick *c.* 5 days old	Chick vanished July 9th (Leg-ring recovered G.B.B. pellet, July 25th)	
GC. 2.	,,	Chick 2 days old	Chick vanished July 9th	
GC. 3.	,,	Chick *c.* 5 days old	Chick gone to sea July 11th	15±1
GC. 4.	July 3rd	Chick *c.* 3 days old	Chick vanished July 9th	
GC. 5.	,,	Chick *c.* 4 days old	Chick vanished July 7th	
GD. 1.	July 8th	Warm egg	Egg vanished July 14th	
GD. 2.	,,	Chick *c.* 5 days old	Chick vanished July 12th	
GD. 3.	,,	Chick *c.* 3 days old	Chick gone to sea July 20th	15±1
GD. 4.	,,	Warm egg	Egg vanished July 10th	

Nest No.	*Date began*	*Observation and nest contents*	*Other observations*	*Fledging Period in days*
GE. 1.	,,	Warm egg	Egg vanished July 12th	
GE. 2.	,,	Chick *c.* 5 days old	Chick gone to sea July 20th	17±1
GE. 3.	July 8th	Warm egg, hatching	Chick gone to sea July 23rd (Ring recovered G.B.B. pellet July 24th. Taken at sea?)	15
GE. 4.	,,	Chick *c.* 4 days old	Chick vanished July 12th (Ring recovered near G.B.B. nest July 12th)	
GE. 5.	,,	Chick *c.* 4 days old	Chick gone to sea July 20th	16±1
GE. 6.	,,	Chick *c.* 3 days old	Chick flew to sea July 22nd	17±1

Number of chicks ringed—11.

THE KITTIWAKE.

K. 1.	July 4th	2 eggs	1 egg July 18th. Nest empty July 20th	
K. 2.	,,	Chick *c.* 3 days old	Chick vanished July 8th	
K. 3.	,,	One egg	Egg vanished July 16th	
K. 4.	,,	2 chicks *c.* 5 days old	Chicks vanished July 6th	
K. 5.	,,	2 eggs	1 egg July 10th. Nest empty July 12th	
K. 6.	,,	Chick *c.* 3 days old	Chick flew from nest August 14th	45±1
K. 7.	,,	2 chicks *c.* 5 days old	One chick vanished July 24th. Nest empty, chick flying near August 11th	44±1
K. 8.	,,	2 eggs ,hatched July 15th	Chicks vanished July 26th	
K. 9.	July 8th	2 eggs, hatched July 15th	Chicks vanished July 22nd	
K. 10.	,,	Chick *c.* 3 days old	Chick vanished July 24th	

No chicks were ringed as the site was inaccessible.

	Razorbill	*Guillemot*	*Kittiwake*
Number of breeding pairs	24	20	10
Number of eggs and/or chicks	24	20	16
Number of chicks fledged	16	6	2
Number of chicks lost before fledging ...	6	7	9

	Fledging Period in days.		
	Razorbill	*Guillemot*	*Kittiwake*
Average fledging-period	15.2	15.8	44.5
Shortest ,, ...	10	15	44
Longest ,, ...	18	17	45

It was possible to estimate accurately the age of chicks only up to two days old. After that an error of one day might occur in estimating the age of a chick put down in this table as *circa* three days old, and up to six days old. Owing to the fact that some chicks matured more rapidly than others, it is likely that an error of two days might occur in any estimate of the age of a chick recorded as seven days old and above. We became fairly expert at assessing ages of chicks, guided by the growth-rate of those chicks whose ages we knew accurately from hatching-dates.

As observations began at or soon after hatching in the majority of cases, the percentage of eggs indicated as surviving to hatching date is not of much value. Many eggs were taken by predators earlier in the incubation-period, the chief robber being the Herring-Gull (*Larus a. argentatus*), which constantly patrolled the cliffs in search of eggs and small chicks. The majority of the larger chicks of all three species were taken by the Great Black-backed Gull (*Larus marinus*), in whose pellets or near them we recovered four of the rings placed on chicks under observation. This gull nested along the tops of the cliffs immediately above the colonies under study, and usually "attacked" the observer each day en route to the watching-posts.

The weather was fine during the first week in July, but gradually deteriorated afterwards ; rain and wind do not appear to have been a factor seriously affecting the chicks under observation during the fledging-period.

Chicks recorded in the above tables as "gone to sea" were believed to be fledged successfully, as they were seen to be well-feathered and on the last day were restless as if about to fly, although they were not actually seen to fly to the sea. Where it is recorded that the chick flew to sea, it was actually seen to fly down by the observer.

Further notes on individual departures are given below.

The human factor as a cause of loss of eggs and chicks is believed to be slight. We took care to disturb the brooding adults as little as possible, and these were not deliberately put off the chick except when assessing the age of the chick on the first day, or when ringing it. Observations at other times were conducted from a distance with the aid of binoculars.

The high mortality of the young in the Guillemot and Kittiwake was due to the attacks of predatory gulls which happened to be nesting rather more numerously on this north side of Skomer. These colonies were all small ones ; smaller colonies of sea-birds are often less successful than the larger ones (Darling, 1938). On the southern cliffs of Skomer predatory gulls, though present, are, in proportion, less numerous because the colonies of Guillemots and Kittiwakes are generally much larger, and in some cases (*e.g.* the

Wick) vast. It is possible that these larger colonies had more success in breeding, but they are rather more difficult to study and no comparative information is available. It should also be noted that many Razorbills nesting under boulders and in holes in other parts of the island would presumably have more freedom from predatory gulls up to fledging time, when the chicks would find it more difficult to reach the sea than those reared on the sheer cliffs, as in this study.

THE RAZORBILL.

The average fledging-period of the six chicks whose hatching dates were known accurately was 15.7 days. That of the ten chicks whose hatching dates were known to within 1-2 days was 14.7 days. The average of the sixteen successfully fledged chicks was 15.2 days, with extremes of 10 and 18 days. *The Handbook of British Birds*, Vol. v, p. 146 states, "Young leave nesting place after 12 to 14 days (Lockley), more than 14 days (J. Tomison)." Observations on the flight of the fledged chick to these a confirm the observations of Lockley (1934), which show that they flutter down unaided, descending in a long slant with whirring wings, which breaks momentum and enables them to steer effectively and usually avoid projecting rocks. On striking rough water they usually continue their "flight" beneath the surface, repeatedly diving under heavy waves, but in calm weather they may not dive immediately on alighting.

Behaviour of individual birds at fledging time.

Chick RB.3. At 10 a.m. on July 17th this chick was restless as he stood beside an adult on the ledge. Another adult was swimming on the sea, calling to the chick. At 10.20 a.m. the chick fluttered down to the sea, and alighted some distance from the swimming adult. Both adult and chick were calling, and immediately swam to meet each other. The adult then convoyed the chick towards a group of Razorbills and Puffins some distance offshore. The adult on the ledge did not follow the chick and was presumably not related to it.

Chick RB.6. Full-grown. Watched from 7.30-8.45 p.m. on July 11th. During this time it was very restless, walking about and flapping its wings. An adult was swimming to and fro on the sea below, calling loudly. The chick had gone next day.

Chick RB. 7. Full-grown, very restless all July 23rd. Had flown by end of next day.

In the case of RB. 3, the adult which stayed on the ledge may well have been a non-breeding bird or an adult which had lost an egg or chick earlier. A certain number of adults were noticed frequenting the ledges for a few days after the last chick had gone. We believe these to be non-breeders (born in the previous year ?) or adults which were unsuccessful in rearing a chick. R. Perry suggests

(1940, p. 138) that these adults are parents of chicks successfully fledged, but without coloured rings or other marking to distinguish individuals it is impossible to accept this statement. Nor do we find it possible to distinguish the sexes in the field, except when coition or egg-laying is witnessed. And of course both adults may be seen together at the changing-over of incubation duty, and feeding the chick together, but Perry's statement that most males are bigger and bushier in the head than their mates and are thereby distinguishable in the field is not confirmed by us, and measurements (Witherby, 1941, p. 149) of specimens show that the sexes are almost identical, and that some females may be slightly larger than some males.

Perry's account of the breeding-habits of the Razorbill (1940, pp. 113-145) is one of the longest published, and has many excellent observations. But it contains some inaccuracies. Perry says (1940, p. 124), "The Razorbill has a curious though very necessary habit, considering the enormous size of her egg, of incubating it under one falling wing." But the Guillemot, which has a larger egg, nevertheless incubates it between her thighs. It is of course, not a question of size, but of the position of the brood-spots. Few observers realize that the Razorbill has two brood-spots, both small (certainly not large enough to cover more than a third of the surface of the egg), each placed slightly forward of the "thigh" and behind and below the junction of the wing and body, i.e., not on the breast or belly. Others of the *Alcidæ* which normally lay one egg but have two brood-patches are the Puffin (*Fratercula arctica*) and Little Auk (*Alle alle*). It is interesting to note that the Great Auk (*Alca impennis*), often regarded as closely related to the Razorbill, had only one brood-spot. As far back as 1826 Faber gave lists of birds whose brood-patches were fewer than, equal to, or more than, the number of eggs laid (Faber, 1826).

THE GUILLEMOT.

The average fledging-period of the six chicks believed to have successfully fledged was 15.8 days, with extremes of 15 and 17 days. This is again at variance with R. Perry's observations, quoted in the Supplement to *The Handbook of British Birds*, p. 23:—"13-16 days (Lockley), but three chicks specially observed by Perry left on 20th or 21st, 22nd and 22nd nights respectively, and observation of groups indicated *c.* 21 days as frequent, though parents begin to show impatience at 14-15 days."

The chick reaches the sea unaided, as in the case of the Razorbill, confirming the observations of Perry and Lockley. Thus GE. 6 chick was seen on July 22nd to take off and flutter down to the sea, where it swam for a second or two, then dived. It came up and was soon joined by an adult.

Some adult Guillemots frequent the ledges after the majority of chicks have left, and as in the Razorbill these are almost certainly birds which have never bred or birds which have been unsuccessful that year. Perry (1940, p. 180) refers to an old bird (with a fledged chick at sea) returning two days later to the ledge, a statement impossible to accept without proof of its identity. On p. 192 is the statement, "July 27th. Chicks now being deserted, and to be seen alone at sea." We have never seen a young Guillemot at sea without its parent or parents during July, August and September, and we have found full-grown chicks uttering the typical "weeoo" note following adults in October and November at sea.

THE KITTIWAKE.

Only two out of ten nests were successful. The chick in each successful nest left around about the 44th day. We can find no record of observations on the fledging-period of the Kittiwake except those of Perry (1940, p. 109) who reports, " First chicks on wing, 28th day." Our observations point to a much longer period, but two instances are not sufficient for a generalisation.

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SUN-BATHING BY BIRDS

COMPILED BY

JOHN GIBB.

ATTENTION has already been drawn in these pages (*antea*, Vol. xxxix, pp. 152, 245, 276) to the habit of sun-bathing among birds. Set out below in summarized form are further notes on this subject received from the following observers: John Cassidy, Bertram M. A. Chappell, T. R. Evans, P. H. T. Hartley, A. E. Hidden, jnr., R. C. Jackman, David Lack, L. Lloyd-Evans, J. H. Owen and T. R. E. Southwood.

STARLING (*Sturnus v. vulgaris*).—Oxon, November 1st, 1946. Five birds in plum-tree against south side of wall, backs to the sun. Wings half-extended and frequently shaken, tail depressed ; body feathers fluffed (B.M.A.C.).

GREENFINCH (*Chloris ch. chloris*).

CHAFFINCH (*Fringilla cœlebs gengleri*).—Oxon, September 2nd, 1946. Seven adult male Greenfinches and three male and one female Chaffinches perched on sunnyside of tall hedge, backs to sun. One or both wings extended, primaries and secondaries widely spread ; tail depressed and fanned. (B.M.A.C.). Oxon, 1946. Juvenile Greenfinch sun-bathing on a tree after heavy thunderstorm. (L.L-E.).

GOLDFINCH (*Carduelis c. britannica*).—Oxon, September 28th, 1946. From forty to fifty singing and twittering loudly in large tree ; of these, 14 adults and juveniles were sun-bathing. Perched length- and cross-wise on the branches to expose backs directly to the sun. Posture as with Greenfinches above ; feathers occasionally fluffed out. (B.M.A.C.).

BULLFINCH (*Pyrrhula p. nesa*).—Berks., December 10th, 1946. Two males and one female watched sun-bathing for about 15 minutes ; perched close against ivy-clad tree with body feathers fluffed out, wings slightly drooped and spread, tail fanned. At first all three were sideways to the sun, then the female slowly turned to face it, while the male turned the opposite way and, with head held back, allowed the sun to play fully on its back ; tail spread gradually. After a minute or so this male turned slowly into the sun ; both birds shook their plumage and settled again. The second male moved once to shake its plumage and face the opposite direction, exposing the other flank ; the near wing was slowly stretched to the full and back to a drooping position. (B.M.A.C.).

HOUSE-SPARROW (*Passer d. domesticus*).—Oxon, September 2nd, 1946. 23 adult males and females perched along the sunny and lee-side of haystacks; backs to the sun and in the same posture as finches, above. A few stirred to preen and all feathers were fluffed ; many appeared in moult. (B.M.A.C.).

RED-BACKED SHRIKE (*Lanius c. collurio*).—Montgomeryshire, May 11th, 1939. Female on bramble-shoot, back to sun. Both wings fully extended and body flattened out almost horizontally, tail partly fanned and slightly depressed. Watched in this attitude for 10-15 minutes, and found similarly exposed in same place two hours later. (J.H.O.).

GOLDCREST (*Regulus r. anglorum*).—Berks., October, 1945. Group of five on spruce branch in full glare of early afternoon sun. All plumage slightly puffed out, some with tails fanned. They seemed restless and remained only a minute or so. (B.M.A.C.).

SONG-THRUSH (*Turdus e. ericetorum*). Kent, June 26th, 1946. Bright sunny morning after rainy night. Single bird on lawn, leaning to one side away from sun with wing raised to expose flank. Body thus supported by fanned tail and other wing half-opened used as a prop. This was maintained for two or three minutes whilst a second bird joined the first and adopted same posture. (R.C.J.). Oxon, 1946. Juvenile Song-Thrushes observed on two occasions during the year sun-bathing on the ground, in one case after heavy thunderstorm. (L.L-E.).

BLACKBIRD (*Turdus m. merula*).—Oxon., 1946. Juveniles twice observed during the year sun-bathing on ground. (L.L-E.).

ROBIN (*Erithacus rubecula melophilus*).—Quite a common habit. Dumfriesshire, August 13th, 1946. Juvenile sun-bathing on a large coltsfoot leaf; wings spread, body feathers ruffled and bill open. (D.L.). Herts., June 23rd, 1946 at 11.45 a.m. Adult crouched on garden seat; wings half-open and feathers fluffed. Resumed same attitude after being disturbed. (A.E.H.). Lancs., July 10th, 1945. In late afternoon, bird crouching on fallen log; wings partly spread, tail pressed to the bark and bill open. Occasionally each leg and wings were stretched in turn and held out for a few seconds. The bird preened and resumed same posture on mossy bank. (J.C.). Oxon., Aug. 18th, 1946. Juvenile with red feathers appearing on breast observed sun-bathing four times in half-an-hour on exactly the same spot, the earthy slope of a potato ridge facing the sun. Posture was always the same, breast against ground, body feathers puffed out, tail outspread and bill open. Each exposure lasted about 45 secs. (L.L-E.).

WREN (*Troglodytes t. troglodytes*).—Kent, June 26th, 1946. Seen at same time as Song-Thrushes, above. In a flower-bed; the body was pressed to the earth, both wings and tail spread. (R.C.J.).

SWALLOW (*Hirundo r. rustica*).—Cornwall, August 2nd and 4th, 1945. On first day four adults sun-bathing on window-sill in south wall. One lying full on its side, at right angles to the sun and facing outwards; upper wing raised at the carpus and primaries clear of the flank. The bird later turned its back to the sun, tilting towards it and slightly raising the upper wing. Two other birds facing the sun were tilted, and had raised the upper wing at the carpus to expose flank and axillaries. Two days later at 09.40 hours, two of several present were sun-bathing; one faced half-way from the sun, with the sun-ward wing raised and body tilted. At 10.45 hours, two or four Swallows were lying on their sides with closed wings; at 11.20 hours, ten of twelve birds were basking in the same way. (P.H.T.H.).

NIGHTJAR (*Caprimulgus e. europæus*).—Norfolk, July-August, 1930. A common habit. One male bird twice changed position in a day's watch, to come out of the shadow to sun-bathe. (D.L.).

LITTLE OWL (*Athene noctua vidalii*).—Berks., November 6th, 1946. An adult perched against trunk of an elm in full sun at about 2 p.m. Wings held slightly away from body, and body feathers well fluffed out; seemed to be asleep. (B.M.A.C.).

BARN-OWL (*Tyto a. alba*).—Kent, 1946. A captive juvenile about eight weeks old was fond of sitting on fence, facing into the sun with closed eyes. (T.R.E.).

BLACK KITE (*Milvus migrans ægyptius*).—Sun-bathing with outstretched wings, spring and autumn. The species observed daily between October, 1941 and November, 1942, and July, 1943 to April, 1944; in these periods sun-bathing was seen thrice in April (at 06.55, 09.01 and 10.00 hours), thrice in May (at 06.35, 07.10 and 08.10 hours), once in June (at 07.10 hours), twice in September (at 07.07 and ? hours), and thrice in October (at 07.00, 08.15 and 08.55 hours). Birds sat on exposed perch; wings fully open at the carpus, and primaries pointing down, bearing striking resemblance to an heraldic eagle. In five cases of six recorded, the birds were facing the sun. *Milvus m. migrans* was not seen to sun-bathe in Iraq from November, 1942 to May, 1943. But in the Aden Protectorate in the winter of 1944-45, *Milvus migrans arabicus* was recorded sun-bathing twice in November (at 07.17 and 08.16 hours), once, after rain, in December (at 09.25 hours), and once in January (at 09.00 hours). (P.H.T.H.).

WOOD-PIGEON (*Columba p. palumbus*).—Kent, August 5th, 1946. An adult lay on a lawn, leaning to the left side with right wing extended towards the sun; breast feathers fluffed. Remained like this for about five minutes. Similar behaviour seen before on several occasions. (T.R.E.S.).

From these records and those already published, it is clear that sun-bathing is a regular habit at least among Passerines and predators. The attitudes adopted show an obvious similarity between different species, whether the bird is facing into or away from the sun ; this is typically the fluffing out of the body feathers, opening of the wings and fanning the tail. The odd postures at times described may usually be attributed to the bird's inclining its body towards the oblique rays of the sun.

The records suggest that juvenile birds are particularly prone to sun-bathing ; as for instance, the juvenile Great Tits (*Parus major newtoni*) recorded (*antea*, Vol. xxxix, p. 152) and, more conspicuously, the nine juvenile Long-tailed Tits (*Ægithalos caudatus rosaceus*) which sun-bathed "with one accord" whilst the two adults of the party continued to feed near by (*antea*, Vol. xxxix, pp. 245-6), and it may be noted that all of the six cases in four species observed by Dr. Lloyd-Evans were young birds. Other cases for juveniles are cited above. The suggested rôle that sun-bathing may play in the process of moult is less clearly indicated, though the dates of records do show a tendency, if nothing more, to concentrate at times of moult.

Mr. Lack draws attention to the observations of the Heinroths and Turner with captive Nightjars, where the fondness of this species for sun-bathing is also remarked. The Nightjar, Little Owl and Barn-Owl may now be added to the Tawny Owl as crepuscular and nocturnal species which deliberately seek out perches exposed to the sun.

The Handbook states that the moult in juvenile Black Kites begins in April, and that for adults it begins in May and extends to autumn. With this in mind, Mr. Hartley remarks : " It may be that sun-bathing is connected with the beginning and the end of moulting in this species ; or that in the middle of the moulting period the Kites receive adequate irradiation from the blaze of the summer sun without special effort."

Dr. Lloyd-Evans raises the question whether sun-bathing in birds might be linked with the metabolism of vitamin D and asks whether the growing bird's vitamin D requirements are always adequately met by the large reserves in the egg and that taken in the food. If not it is possible that they might be supplemented in young birds as a result of the manufacture of the vitamin by irradiation of the substance ergosterol in the skin, as happens in mammals. This would involve exposing the skin to direct sunlight and might account, Dr. Lloyd-Evans suggests, for the fluffing out of the feathers. [The idea is intriguing, but we do not think that the fluffing out of the feathers *would* expose the skin to the direct rays to any appreciable extent.—EDS.]

STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

VIII. THE BROAD-BILLED AND WOOD-SANDPIPERS

Photographed by
H. N. SOUTHERN, W. E. HIGHAM AND R. CHISLETT.

(Plates 16-21)

OUR photographs illustrate two species of waders breeding in northern Europe and occurring on passage in the British Isles, the Wood-Sandpiper (*Tringa glareola*) with some regularity in suitably marshy localities, chiefly in coastal districts of eastern and south-eastern England and even on some midland sewage-farms, but the Broad-billed Sandpiper (*Limicola f. falcinellus*) only rarely in any part of the country.

The much greater frequency of the Wood-Sandpiper in Britain is no doubt related to its much more extensive range in Europe and greater abundance where it occurs. Though probably the most characteristic and ubiquitous wader of the northern forest-belt its range extends far to the south in eastern Europe, while even in the west it breeds regularly as far south as Jutland, and has done so even in Holland and Belgium. It has also bred on at least one occasion in Britain, on Prestwick Car in 1853.

The Wood-Sandpiper is distinguished from the Green Sandpiper, which it somewhat resembles, by its speckled upper-parts and paler appearance in flight, in which it does not display the strikingly black and white aspect of its relative. In Lapland, where Mr. Southern's photographs were taken, it frequents almost any sort of marshy ground from larger swamps and mosses to patches of an acre or less round forest pools and, like many of the northern waders on the breeding-ground, perches freely on trees and bushes. The close-up photograph shows well the characteristic position of the toes of waders in such situations, not tightly grasping the twigs or branches like those of Passerine or other birds more adapted to perching.

Mr. Higham's excellent photograph of a passage bird in autumn was secured at Hickling in 1946 and is, so far as we know, the first to be taken of a Wood-Sandpiper in the British Isles.

The Broad-billed Sandpiper is a denizen of peaty morasses and bogs in the high north and in our experience is nowhere numerous. On passage in Europe it is found chiefly on muddy patches on salt or fresh marshes rather than on the open shore, though in other parts of its range it is more of a shore-bird. In summer plumage the strikingly dark, almost snipe-like pattern of the upper-parts is characteristic. This feature is well brought out in Mr. Chislett's photographs, taken in Swedish Lapland, which are, so far as we know, unique. They also show well the form of the bill, slightly decurved at the tip; its broadness is not particularly apparent in the field. The general form is not unlike that of a rather small and short-legged Dunlin, and resemblance is increased in the grey winter plumage, which, however, is scarcely ever seen in this country.

NOTES.

ROOK FEEDING ON MUSSELS.

On November 17th, 1946, I observed a Rook (*Corvus f. frugilegus*) collecting a mussel from the shore at Ardnadam by Dunoon, Argyllshire, carrying it into the air some short distance and then letting it drop. This action was repeated three times, when the shell broke among the pebbles. The bird devoured the contents and then flew away to some high trees in a neighbouring wood.

I can state that the bird was definitely a Rook and not a Crow, as I saw the bare whitish patch at the base of the bill clearly.

Charles F. Priestley.

JAY TAKING SLOW-WORM.

On July 16th, 1946, at Herringfleet, Suffolk, I found a Jay (*Garrulus glandarius rufitergum*) shaking an object—which I thought was a snake—on the ground. It swallowed a piece about four inches long with difficulty, and then picked up another and larger piece and knocked it on the ground. From a distance of about ten yards with x12 binoculars I then saw the object was alive and, scaring the bird away, found it to be a Slow-worm (*Anguis fragilis*) minus its tail, which the Jay had swallowed.

I released the Slow-worm, which measured twelve inches in length, and it went into the undergrowth.

This is not recorded in the section on food in *The Handbook*.

H. E. Jenner.

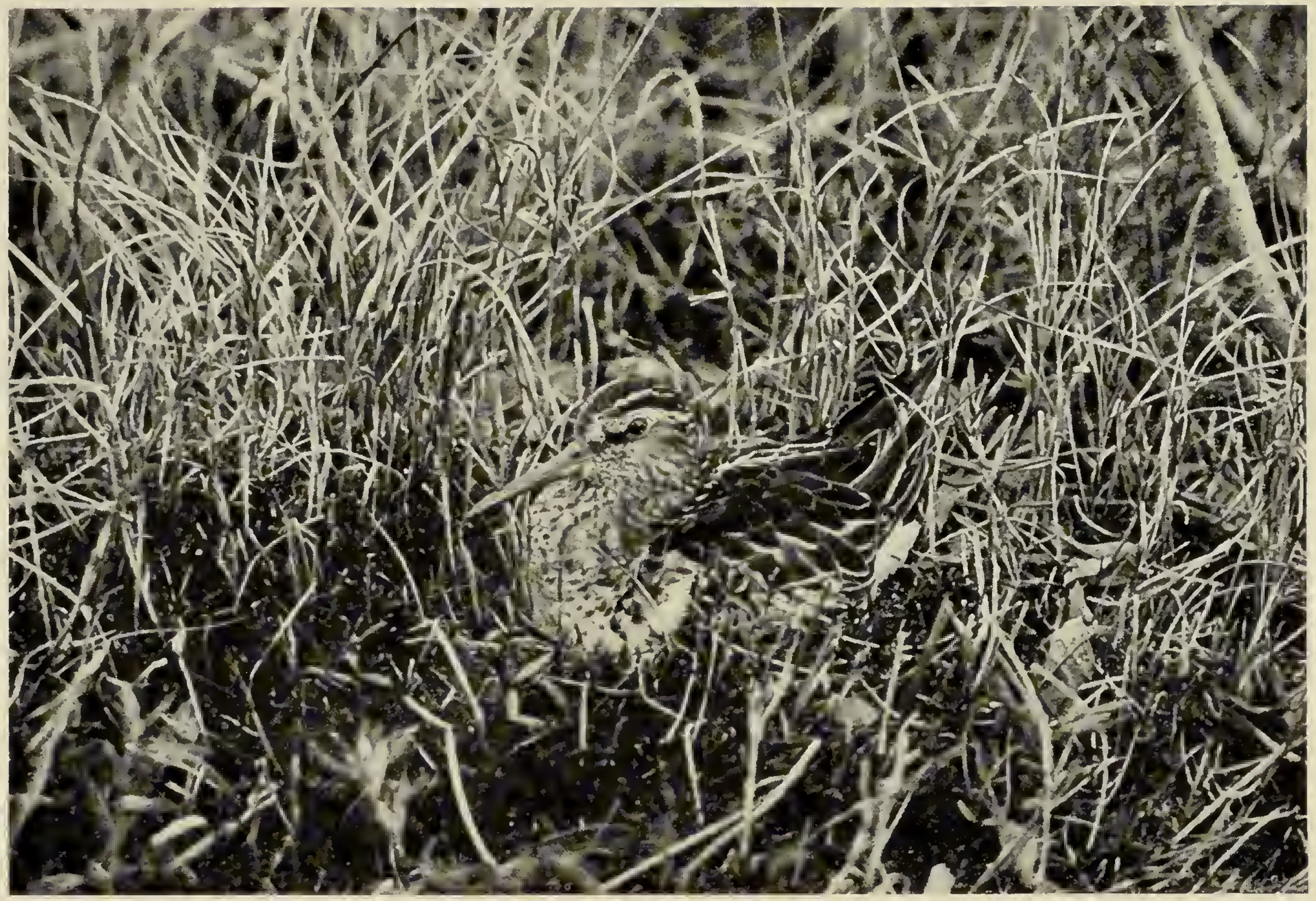
[Although *The Handbook* does not mention Slow-worms, or indeed any reptile, amongst the food of the Jay, the German *Handbuch* includes snakes amongst " small vertebrates " taken by *G. g. glandarius.* It is reasonable to suppose, therefore, that lizards and Slow-worms are also taken on occasions, though actual records are desirable.—Eds.]

RUSTIC BUNTINGS IN SUSSEX.

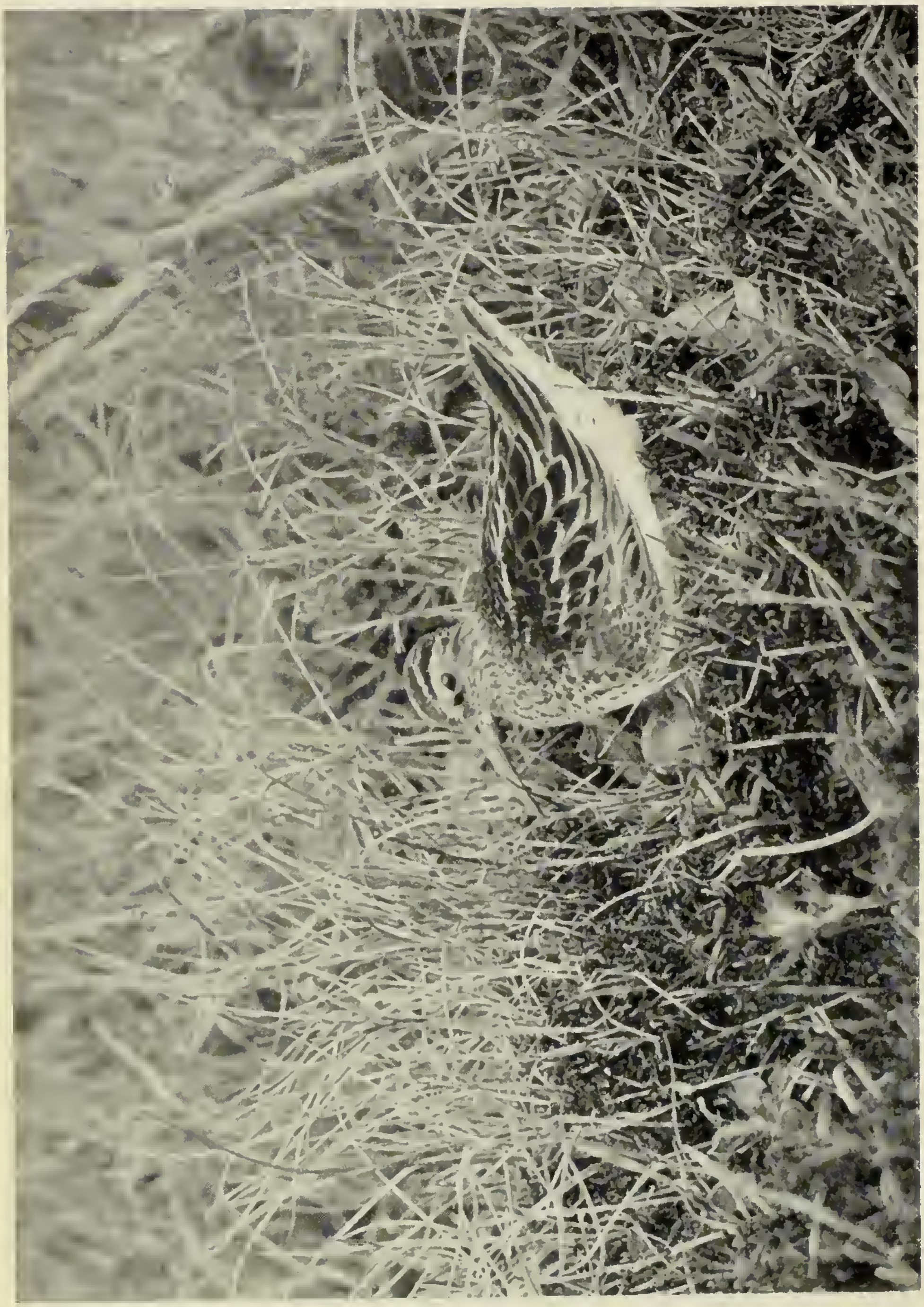
On November 18th, 1946, I visited the Midrips, which is an area lying in Sussex about 5½ miles W.S.W. of Dungeness Lighthouse, consisting mainly of several shallow and marshy lakes surrounded by swamp, shingle and grass and separated from the Channel by two high banks of shingle.

From the top of the inner of these banks I watched, through 8x binoculars and in very good light, a pair of buntings which were feeding among the grass and weeds less than 20 feet from me, but of whose identity I had, at the time of observation, no idea. After most careful comparison of my notes with descriptions in *The Handbook of British Birds*, I came to the conclusion that the birds were undoubtedly a pair of Rustic Buntings (*Emberiza r. rustica*).

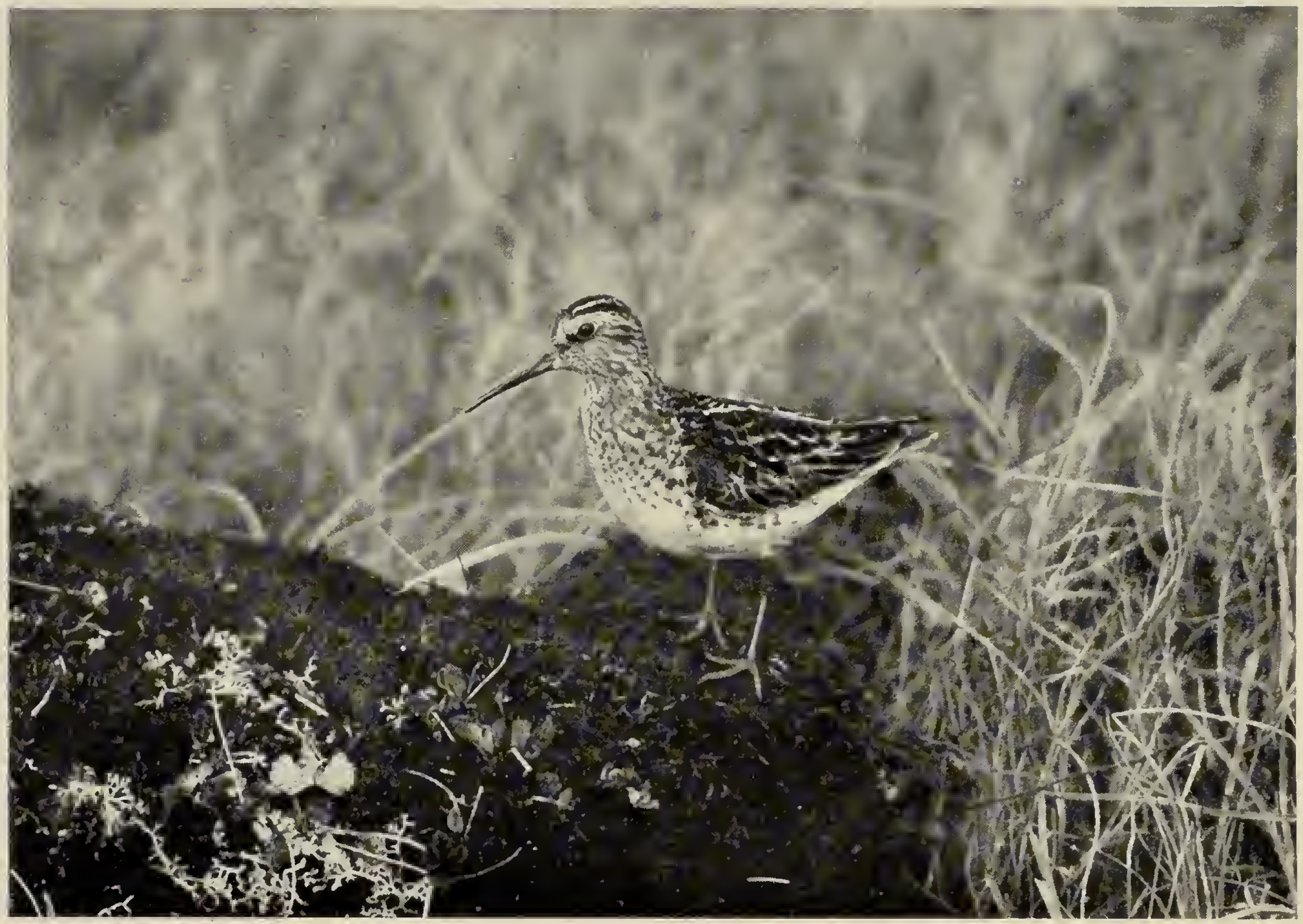
The following description is taken from my field notes. Male : back and mantle chestnut, flecked with black; chestnut and unflecked



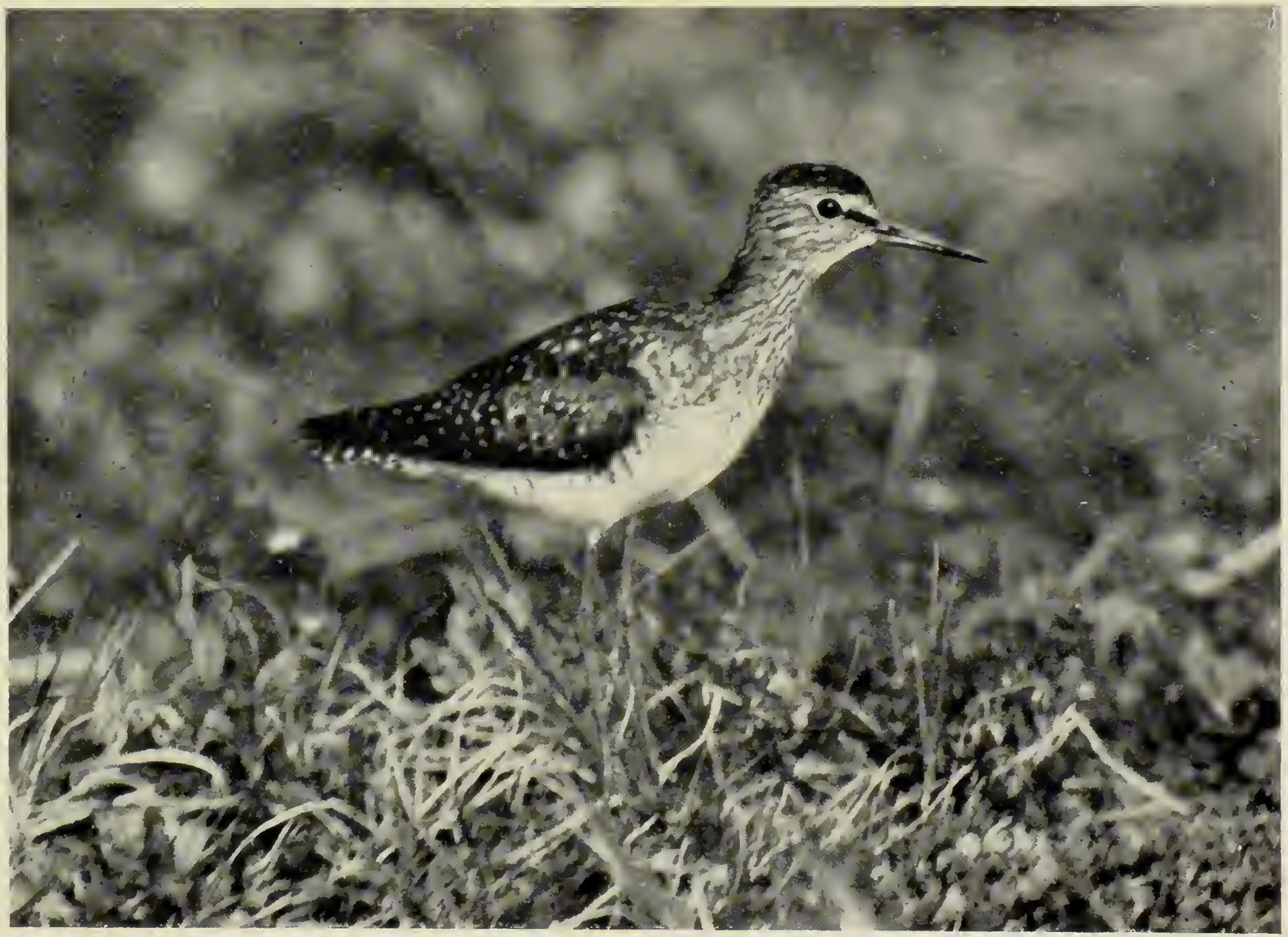
Broad-billed Sandpiper (*Limicola f. falcinellus*) on nest: Swedish Lapland.
(*Photographed by* R. Chislett).



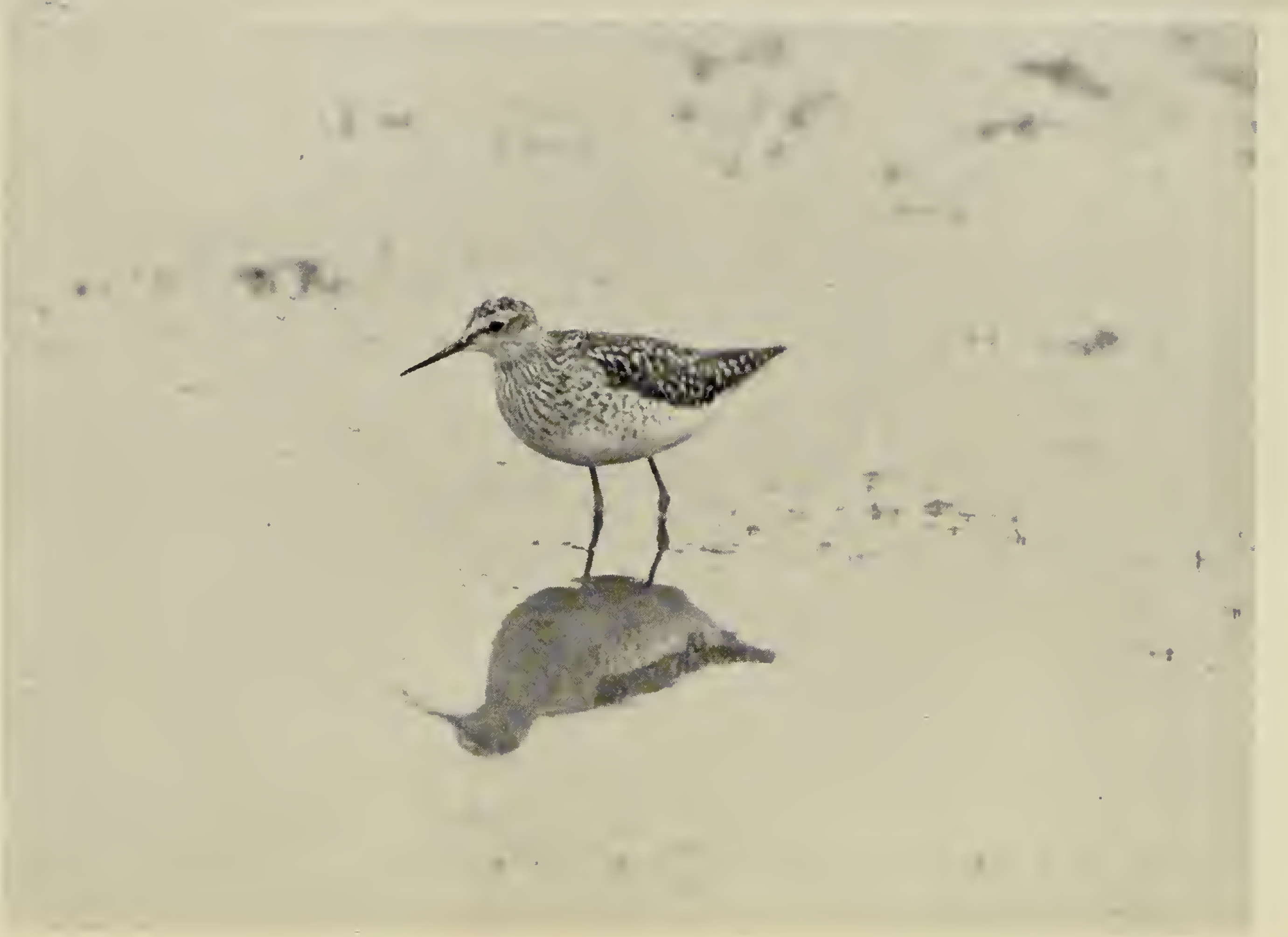
Broad-billed Sandpiper (*Limicola f. falcinellus*) on nest : Swedish Lapland.
(*Photographed by* R. Chislett).



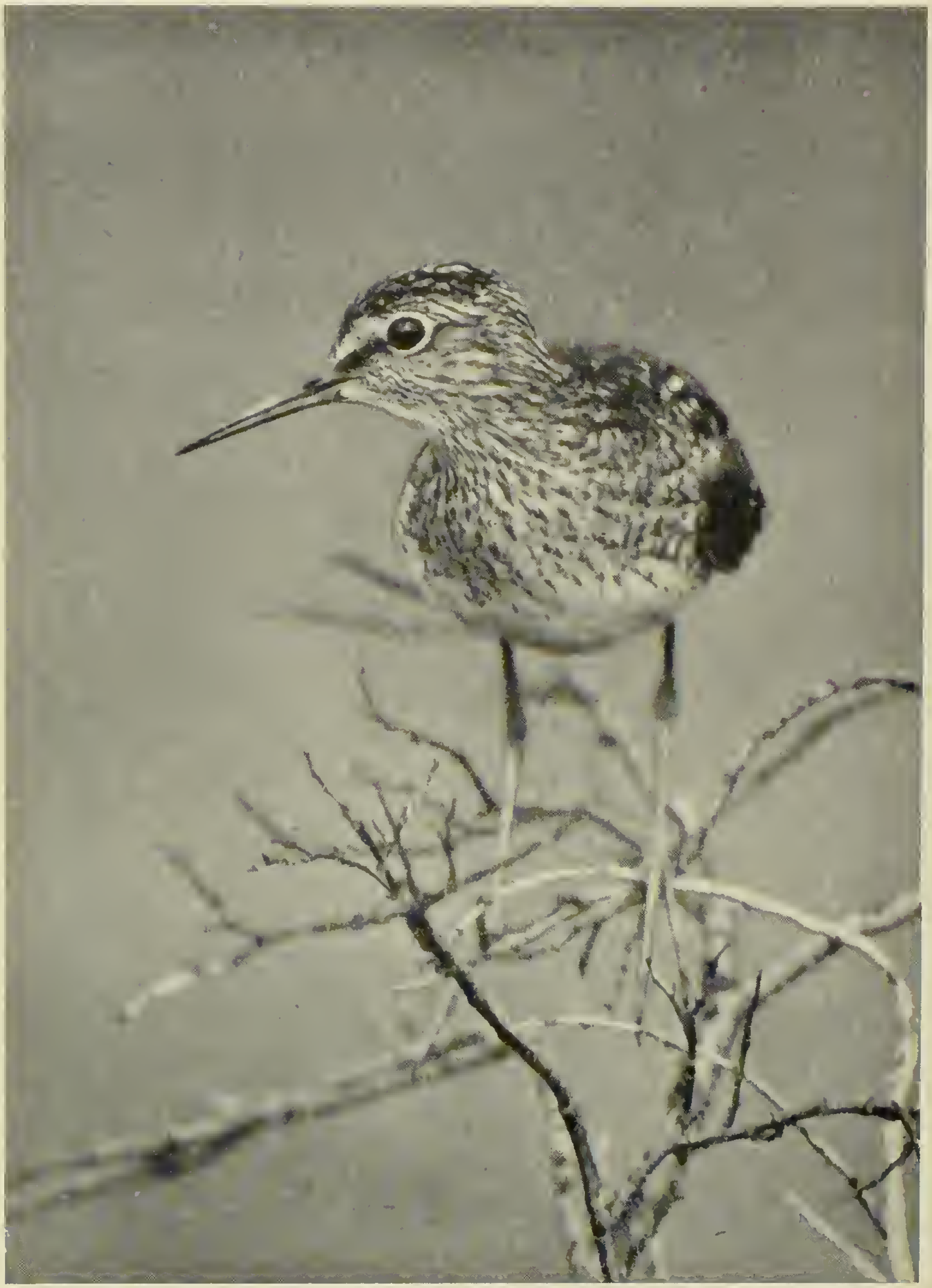
Broad-billed Sandpiper (*Limicola f. falcinellus*) : Swedish Lapland.
(*Photographed by* R. Chislett).



WOOD-SANDPIPER (*Tringa glareola*) DOVREFJELD, NORWAY.
(*Photographed by* H. N. Southern).



Wood-Sandpiper (*Tringa glareola*): Hickling, Norfolk.
(*Photographed by* W. E. Higham).



WOOD-SANDPIPER (*Tringa glareola*) : DOVREFJELD, NORWAY.
(*Photographed by* H. N. Southern).

rump ; margins of tail white ; whole of under-parts very pale buff except for conspicuous dark brown band across the breast and chestnut tinge on the flanks ; dark chestnut crown divided from cheeks and ear-coverts of the same colour by white superciliary streak ; nape and sides of neck dusky buff ; tips of greater and median wing-coverts white, forming, on the closed wing, two distinct bars ; bill yellowish-brown ; dark legs. Female : as male, but all colours less rich except on rump and under-parts ; pectoral band less conspicuous.

During the 20 minutes of my observation of these very rare vagrants both birds fed continually, creeping about silently and appearing to be in a rather exhausted condition. The birds' fatigue and consequent unwillingness to fly gave me ample opportunity for noting and memorizing every detail of their plumage and I am absolutely certain of all the information which I have given.

M. L. R. ROMER.

"INJURY-FEIGNING" OF MEADOW-PIPIT.

I WAS interested to read Mr. R. F. Ruttledge's note (*antea*, Vol. xl, p. 20) concerning "injury-feigning" of the Meadow-Pipit (*Anthus pratensis*). I should like to add that I have observed almost exactly similar behaviour on at least one occasion by a Meadow-Pipit on the hills south of Burnley, Lancashire ; notably on June 1st, 1945, when I flushed a bird from a nest containing newly-hatched young. The actions were not really convincing, and the whole performance was of very short duration. K. G. SPENCER.

COURTSHIP FEEDING OF COAL-TIT.

ON May 6th, 1946, at Walwyn's Castle, Pembrokeshire, I watched a pair of Coal-Tits (*Parus ater britannicus*) whose behaviour was very similar to that described by F. C. Bromley (*antea*, p. 51). They were feeding in an apple and an oak standing some fifteen yards apart, working chiefly among the leaves and smaller branches. The usual thin "tsee" was uttered almost continuously, and once or twice a note like a rather soft version of the Chiffchaff's (*Phylloscopus c. collybita*) "hweet." During the ten minutes or so I was watching them one fed the other quite half a dozen times, once crossing from one tree to the other to do so. The bird being fed shivered its half-spread wings as most newly fledged passerines do when demanding food or being fed by a parent, and uttered chittering cries. After having been fed several times it behaved in this way in the absence of its mate, as though asking to be fed again, notably when on one occasion he was foraging in the other tree, and the interval between the bringing of food was longer than usual. I had a good view of both birds at close range, and there is no possibility of one of them being a juvenile of an abnormally early brood. I lost trace of them when they had worked their way to the far side of the oak. T. A. W. DAVIS.

ATTEMPTED COITION OF GOLDCREST IN OCTOBER.

On October 17th, 1946, at mid-day, I watched two Goldcrests (*Regulus r. anglorum*) attempting coition. They were in the lower branches of a small pine at the edge of a plantation near Barrow Gurney, N. Somerset. I was first attracted by a high pitched "zee zee zee" continuously repeated, uttered by one of the birds which I presumed to be the male. The note was higher-pitched and louder than the ordinary call-note. This bird was moving continually around the female, usually passing above and below her. The movements were rapid and jerky with tail moving from side to side. The crest was not noticeably expanded. The other bird presumed to be the female, was crouched with head well down and tail depressed and fully expanded. The small feathers of the rump were raised and formed a small dome. The beak was continually opening and shutting slowly with no audible note being uttered. After ten minutes of this behaviour the male mounted the female for a second or two and then resumed the usual movements around the female, who had not moved from the original position.

A chilly east wind was blowing at the time and the sky was clouded over. R. H. Poulding.

SIBERIAN CHIFFCHAFF ON THE IRISH COAST.

The occurrence of a Siberian Chiffchaff (*Phylloscopus collybita tristis*) on migration at Tuskar Rock Lighthouse, off Co. Wexford, constitutes the second known record for Ireland (*antea*, Vol. xxxvii, p. 234).

The bird was killed during the night of October 15th-16th, 1946, and was forwarded to me in the flesh.

Messrs. Wagstaffe and Williamson of the Yorkshire Museum kindly examined the specimen critically and have confirmed my provisional determination. Robert F. Ruttledge.

LATE SINGING OF WILLOW-WARBLER.

With reference to Mr. F. M. Firth's note on renewed singing of the Willow-Warbler (*Phylloscopus t. trochilus*) (*antea*, p. 51), my own observations, which were made at Tadworth, Surrey, in 1946, may be of interest.

I noted singing during the latter part of July, on the 17th, 20th, 23rd, 25th, 26th, 28th, 29th and 30th. August song was heard on the 2nd, 3rd, 4th, 6th, 18th, 21st, 23rd, 24th, 26th and 30th. Willow-Warblers continued to pass through the district until September 29th, but no singing was noticed after August 30th.

Howard Bentham.

LATE WILLOW-WARBLER IN YORKSHIRE.

On November 6th, 1946, when in Ormesby village, a few miles south of Middlesbrough, I was amazed to hear clearly the song of a Willow-Warbler (*Phylloscopus trochilus*). The notes were followed up and one bird was seen. The date is by far the latest I have for this species in the North, early October being the last period during which the bird has previously been observed.

The bird may have been of the Northern race (*P. trochilus acredula*), but in either case the date and location were most unusual.

J. P. UTLEY.

VARIETIES OF BRITISH ROBIN.

A ROBIN (*Erithacus rubecula melophilus*) similar to the type recorded by P. A. Clancey and Bruce Campbell (*antea*, Vol. xxxix, pp. 281, 375) and originally by Dr. J. M. Harrison (*Bull. B.O.C.*, Vol. lxvi, p. 69) was seen near Yearsley, N.E. Yorkshire on October 10th, 1946. The bird allowed close approach and a friend, J. B. Caldwell, and myself were able to make field sketches of it.

The feathering of the flanks and lower breast was heavily suffused with very dark grey. This did not, as in Dr. Harrison's specimens, which I have seen in his collection, form a complete band across the lower breast, but there was a nearly complete band of dark grey higher up on the red gorget, dividing it into upper and lower parts, which was continuous with the normal grey marking of the side of the neck. Apart from these anomalies the bird was normal.

W. H. W. INMAN.

WITH reference to the records of Robins with dark borders to the orange breast (*antea*, Vol. xxxix, pp. 281, 375) I saw a somewhat similar variety near Doddington, Cheshire, in May, 1945. I observed this bird at about 8 yards range and it appeared to be almost black below the normal orange breast. As I well remember, the dark belt was clearly defined, extending downwards to the legs, and joined neatly on to the orange breast, like a black cummerbund. I have been told that the bird must have got its feathers soiled with tar or paint, but I am convinced this was not the case, as I had time to notice that the plumage of the underparts did not appear in any way clotted or disarranged, but on the contrary looked fresh, soft, clean, and natural. The bird was carrying food and no doubt had a nest. After a few moments it attacked and chased another bird, a House-Sparrow to the best of my recollection, and I did not see it again. W. H. BOSTON.

WREN SWIMMING.

I HAVE recently observed some rather curious behaviour of a Wren (*Troglodytes t. troglodytes*).

About four yards from my garage door is a rain water tank full to the brim with water. On going to the garage on November 19th, 1946, I saw a Wren bathing in the water, and not on the iron rim of the tank. The bird flew off at my appearance. I went behind the garage door and looked out of a small hole to watch.

Presently the Wren came back and perched on the iron rim of the tank. After a look round it took off and swam round in a semicircle and landed back on the rim. It rode the water most buoyantly, fluttering its wings a little as it swam. The water was quite two feet deep. The Wren seemed to enjoy the performance and it swam round the tank several times again, doing all the motions of a bird bathing when it reached the rim again.

One is apt to forget how buoyant all birds must be in water—for a time. FRED S. TRITTON.

BEE-EATERS IN LANCASHIRE.

FROM October 8th to November 7th, 1946, two Bee-eaters (*Merops apiaster*) frequented gardens at Ainsdale, on the coast of South Lancashire. I first saw them on the morning of October 8th, a mild sunny day after a period of S.E. wind, and at once recognized them as Bee-eaters, birds with which I was familiar in Palestine, Egypt and Iraq during 1915-1919. They flew with a small flock of Starlings, which occasionally made half-hearted swoops at them, and perched on willows and poplars, etc., from which they made frequent attacks on bees and similar insects feeding on Michaelmas daisies and other flowers. For several days they were present in my garden and that of a neighbour, where there were bee-hives, and fed on the bees. At noon each day they rested on a tree or a rose-pergola. They were then lost sight of for some days, but appeared again on October 19th, and remained until November 7th. It was possible to examine them within four or five yards, and the following is a description of them :—

In size somewhat larger than the Starlings with which they flew. When first seen the long middle tail feathers were present on one bird, but these feathers of the second were shorter. Later on both birds appeared to have lost these feathers except for a short projection beyond the main contour of the tail ; when the tail was spread in flight, as when hawking insects, this could be clearly seen. All details of plumage could be very clearly examined with binoculars, and generally agreed with the illustrations in *The Handbook* with the following exceptions : in full sun against a background of shrubs the general effect was brighter in tone ; the bronze-brown nape is well suggested, but the mantle appeared greener ; primaries brighter than in illustrations, except for tips, but this may be due to the draughtsman's having outlined the feathers in almost black colour. *The Handbook* description of male and female in winter plumage, in which the upper-parts are greener than in summer, corresponds closely with the plumage as observed ; based on this I would suggest that they were male and female.

The birds were also seen by Mr. N. F. Ellison, Mr. E. Hardy, Mr. Burd and other competent observers. Mr. Ellison, who with Mr. A. C. Burd and Miss P. Jones watched them for two hours on October 22nd, also made full notes of their plumage and saw them taking bees at the hives, occasionally hovering with raised wings and expanded tail as they took a bee. He noticed that a cock Chaffinch, a House-Sparrow and Starlings occasionally attacked them, but that when the Bee-eaters perched the attacks stopped. The note I heard was a somewhat liquid "chuck," which Mr. Ellison records as a liquid "quilp" or a longer "quil-ip" uttered in flight and at rest. Mr. W. L. French also saw them on October 23rd. There is no previous record of the occurrence of the Bee-eater in Lancashire. LEONARD RIGBY.

CUCKOO IN LONDON IN NOVEMBER.

ON November 26th, 1946, I was much surprised to see an immature Cuckoo (*Cuculus c. canorus*) fly across the Thames between the Houses of Parliament and St. Thomas's Hospital. It flew off south-westwards. JEFFERY HARRISON.

LITTLE OWLS NESTING IN CORN-STACKS.

ON May 6th, 1946, during removal of thatch from an oat stack in preparation for threshing, a Little Owl (*Athene noctua vidalii*) was flushed and on investigation I found its nest containing four eggs which were shortly due to hatch. The nesting hole, which was probably an old rat excavation, was about nine inches deep and well protected by overhanging thatch. Curiously enough the threshing contractor informed me that this was the third Little Owl's nest found in a week in corn-stacks. One of the other two was under thatch and the other in the side of the rick. I note that this nesting site is not mentioned in *The Handbook*. L. G. WELLER.

[We have several records of Little Owls nesting in corn-stacks and suspect it is not really very unusual, but the finding of three such nests in a week seems noteworthy.—EDS.]

GURGLING NOTE OF TAWNY OWL.

UNDER Tawny Owl (*Strix aluco sylvatica*), *The Handbook of British Birds*, Vol. ii, p. 339, mentions a "soft, tremulous, gurgling trill . . . . chiefly confined to breeding-season, but described by Stadler as commonest in autumn and winter on Continent." I have only heard this call during October and November, 1946, but it has been quite frequent here at Shrewsbury. The best description is of a schoolboy calling "loo-loo-loo" and at the same time rapidly moving his tongue from side to side. R. HARRISON.

MALE GOLDEN EAGLE INCUBATING.

IT IS, I think, generally believed that the female Golden Eagle (*Aquila ch. chrysaëtus*) does all the brooding of the eggs, and although *The Handbook* states that "there is evidence of the male occasionally taking some part in incubation" I do not know that the actual *change over* at an eagle's eyrie has been observed. On April 1st, in a recent year, I saw a Golden Eagle carry a large stick to the eyrie.

On April 8th, I saw the change over. This took place at 5.50 p.m., G.M.T.

A Golden Eagle appeared high over the cliff. Arriving at a height of perhaps 1,000 feet above the eyrie the bird carried out skilled evolutions over the nest, dropping spirally with legs extended, then almost hovering with wings slightly bent, heron-wise. Later, turning on its side, the eagle started a magnificent rush earthward, alighting for a minute on a broad ledge at the top of the rock, then launched out again and corkscrewed down to the eyrie, alighting at the edge of the nest. There was still no sign of the brooding bird. The newcomer stood patiently, looking down on to the nest. At length there was a movement, the sitting bird's head appeared, and as it rose to its feet I could see, watching with the glass, that it was a very dark eagle, almost black in the shade of the rock. It stood for a moment, then launched out and flew low and furtively across the cliff face ; when it appeared against the sky it made off at tremendous speed down wind. The second eagle then walked into the nest, and settled itself on the eggs.

I observed the change over on several occasions between April 8th and 30th. On the 30th, the change over was spectacular. The eagle on duty was standing on the top of the cliff when he was set on and mobbed by his neighbours, a pair of Ravens. The eagle rose and, turning and twisting in the air, dropped to the eyrie. The Ravens did not follow him here. His mate stood up in greeting ; they both took wing just after he had alighted. In about two minutes the "relief" was back, easily distinguished by his darker plumage. He settled himself very slowly on the eggs with infinite care.

I am inclined to think this male Golden Eagle was unusually domestically minded, for I have not before seen a male undertake a share of the incubation although I have seen him brooding the small young.

I am unable to say how long his turns on the eggs were, but he continued to brood during the time I remained in sight of the eyrie, a matter of from half an hour to an hour, when the light began to fail, so it is possible he sat throughout the night.

SETON GORDON.

NESTING SEASON OF COMMON BUZZARD.

INTERESTED by the statement (Vol. xxxix, p. 346) that two Devonshire records of the nesting of the Common Buzzard (*Buteo b. buteo*)—one egg estimated on April 7th, and three eggs on April 18th, 1943—were considered " particularly early," I looked up my notes on the species in the Ardnamurchan district of Argyll, and found the following dates :—1929 : April 9th, bird sitting (two eggs were examined on 15th) ; April 19th, three eggs and April 22nd, three eggs. 1930 : April 17th, two eggs (later four) ; April 20th, four eggs. 1931 : April 14th, one egg ; April 19th, three eggs; April 21st, one egg. 1937: April 17th, four eggs. These nine nests are the total found in April with eggs during those years, and in eight cases there can be a strong presumption that the first egg was laid before the middle of the month.

For comparison I may add that, on a visit to the Forests of Troncais and Dreuille in the Bourbonnais region of France in 1933, I found both Buzzards and Kites (*Milvus m. milvus*) sitting "tight" in the second week of April, and the three eggs in a Buzzard's nest to which I climbed on the 28th were hatching. BRUCE CAMPBELL.

[In deciding what cases of early nesting were deserving of publication we have mainly relied on the detailed data in the late Rev. F. C. R. Jourdain's manuscript records, in which, under Buzzard, one egg, April 14th, two eggs, April 19th, and three young, April 20th, are specially noted as early. Of the two records referred to by Mr. Campbell we think the first—first egg *c.* April 7th—would certainly rank as "particularly early" in south-western England. The phrase is possibly a trifle strong as applied to the second case, but even this is "early." In order to obtain fuller information we consulted the Rev. C. J. Pring, who has extensive experience of Buzzards in the West Country, and he has kindly provided the particulars which follow.—EDS.]

FROM detailed records of 60 nests examined over a period of 15 years it is evident that most Buzzards (*Buteo b. buteo*) in the south-west of England lay during the ten days April 15th-25th. Any *full sets* before April 20th I consider early and any before April 15th should rank as notably early. My earliest record is of a set of three on April 12th, 1933, and I have four other records of full sets before April 20th, namely *c*/3, April 18th, 1933, and 2/3, April 19th, 1935, and *c*/2, April 19th, 1933. It may be of interest that in these nests, omitting the cases of two clutches which were probably incomplete, the clutch sizes were distributed as follows:

c/6	*c*/5	*c*/4	*c*/3	*c*/2	*c*/1
1	2	3	34	17	1 (an old bird)

C. J. PRING.

MARSH-HARRIER IN LANCASHIRE AND CHESHIRE.

A Marsh-Harrier (*Circus æ. æruginosus*) was seen by me at Thelwall Eye, Lancashire, on nine dates between November 26th and December 13th, 1946. On my second visit, with binoculars on the 28th, I identified it as an adult female, and thus confirmed the identification of A. W. Boyd, who had seen the bird on the 27th. The crown, nape and throat were a cream colour and a white patch across the top of the back extended into the shoulders, while the breast was a dark chestnut.

The harrier's area was a disused dredgings deposit ground situated between the River Mersey to the north and the Manchester Ship Canal to the south, comprising a large pond and marsh with a considerable growth of long grass interspersed with a few low salix bushes, which were favoured perches.

At times the bird chose to rest on top of a larger willow over which it hovered before perching, but it mostly preferred to remain in the deep marsh grass, whence it was difficult to flush it. Boyd also saw it hovering over the marsh on several occasions. Before the Ship Canal was constructed the whole area was part of Cheshire, but the county boundary was later demarcated by the canal instead of the river.

On one occasion the harrier flew over Lymm golf course, Cheshire; and another day it circled north over the Lancashire moss-lands at Rixton.

I gather from *The Handbook* that wintering Marsh Harriers are somewhat rare. A. R. SUMERFIELD.

WHITE-TAILED EAGLE IN WORCESTERSHIRE.

SOME considerable publicity has been given elsewhere to a record of a Golden Eagle (*Aquila ch. chrysaëtus*) which was reported to have been shot at Wannerton, near Kidderminster, on December 25th, 1945 (cf. *antea*, Vol. xxxix, p. 379-380). At the request of Mr. A. J. Harthan I inspected this bird, as the record had at that time been substantiated by no detailed description. On examination the bird proved to be a juvenile Sea-Eagle (*Haliæetus albicilla*) and not a Golden Eagle as had been reported. In general plumage the bird compared very closely with the description of the juvenile given in *The Handbook* (Vol. iii, p. 94). The bill was far deeper than in the Golden Eagle, measuring in this case 55 mm. from the cere, the centre toes were covered for nearly their whole length with twelve separate scutes, exactly as in the diagram in *The Handbook*, Vol. iii, p. 42, and at least half of the tarsus was bare of feathers. C. A. NORRIS.

AMERICAN BITTERN IN PEMBROKESHIRE.

ON October 19th, 1946, R.M.L. almost stepped on an American Bittern (*Botaurus lentiginosus*), which he surprised as it stood among boulders on the shingle of Abermawr beach on the west side of Ramsey Island, Pembrokeshire. It flew with a slow and easy flight, circling towards the top of the cliff (about 180 ft. high) which it reached just as J.L.D. was about to climb down. On seeing him it sheered off and landed on a ledge of the cliff in full view of R.M.L. on the beach below, but it was not visible from the cliff-top. It remained on this ledge for a few moments and then flew slowly southward along the cliff face. It was not seen again, but there was unfortunately no opportunity to make a special search.

R.M.L. especially noted brown and not black on the head, a black streak on the side of the neck, absence of distinct barring on the back and wings ; the latter appeared to be uniform dark brown. The impression he gained of the upper-parts was of brown lightly speckled, but without any black striations. J.L.D. was struck by the black neck patch and the uniformly brown appearance of the back, and could see no difference between this bird and others of the species which he has watched in Canada.

In its native country this species is frequently seen in the open, as at Ramsey, away from swamps and marshes such as the Common Bittern (*Botaurus s. stellaris*) usually frequents as a winter vagrant in this country. This is, we believe, the third recorded occurrence in Pembrokeshire. J. L. Davies and R. M. Lockley.

DISPLAY OF IMMATURE BEWICK'S SWANS.

At various times between February 15th and March 16th, 1946, a number of Bewick's Swans (*Cygnus b. bewickii*) was observed on a small lake at Malltraeth, Anglesey. These birds were considerably smaller than three Mute Swans (*Cygnus olor*) which were also present. The loud barking alarm note was heard repeatedly and the extent of the yellow on the bill was well seen.

On March 16th, 23 birds were present, of which 12 were in adult plumage and 11 were immature birds probably in their first winter. The young birds were greyish and the specific bill pattern was indistinct.

The following display was observed to take place between two of the immature birds :—The pair approached each other twining their necks together and biting each other on the shoulders. One bird, presumably a female, suddenly turned round and swam away pursued by the other bird (male ?). After swimming about ten yards the display finished by both birds standing in the water and wing-flapping. While this was taking place an adult bird swam rapidly towards the displaying birds, but turned away before approaching closely. *The Handbook* describes an almost identical display as an accompaniment to coition, but adds that sinuous display movements of extended neck have been observed in mid-winter. It is thought that the display described above probably had some sexual significance although the birds had not acquired adult plumage. E. B. Brown and G. E. Thomas.

BEHAVIOUR OF MUTE SWANS.

On October 22nd, 1946, I saw a family of Mute Swans (*Cygnus olor*) swimming on the River Tweed a little above Peebles. The party consisted of the two parent birds and five brown and grey cygnets.

Suddenly, the whole family began a curious display, first swimming round and round in small circles, with much wing-flapping ; then the five juveniles rolled about in the water with closed wings, sometimes lying on their sides for a few seconds with necks stretched out along the surface of the water. One turned right over on to his back and lay with both legs in the air. The two adult birds swam round as described above, but took no part in the juveniles' rolling.

After behaving in this way for fifteen minutes all the birds moved slowly away up-stream and disappeared, the juveniles still keeping up their rolling performance. MICHAEL G. GIBSON.

PINTAIL FEEDING ON POTATOES.

OWING to abnormal rainfall in the late months of 1946 it proved impossible to harvest a field of potatoes on an East Kent marsh. By January, 1947, the potatoes had become pulpy and/or partially rotten and the decaying crop attracted Mallard (*Anas p. platyrhyncha*) and Pintail (*Anas a. acuta*) in good numbers.

The Handbook makes no mention of the potato being a food of the Pintail, so it may be interesting to record that the gullets of several, shot when feeding on the field in question, contained potato. T. C. GREGORY.

POCHARD BREEDING IN EAST KENT.

AS this species has not, to my knowledge been previously observed to nest in east Kent, the following facts should be placed on record. On July 6th, 1946, two broods of young Common Pochards (*Aythya ferina*) were seen accompanied each by an adult female in a marsh along the river Stour below Fordwich. Rather fewer Pochards were seen there on August 4th, but it was not then possible to distinguish adults from young. E. O. HÖHN.

MATING BEHAVIOUR OF WIGEON AND RED-BREASTED MERGANSER.

THERE are no descriptions in *The Handbook* of the mating behaviour of the Wigeon (*Anas penelope*) and the Red-breasted Merganser (*Mergus serrator*), of which birds I have made the following observations.

On February 25th, 1945, I saw on the Exe estuary a pair of Wigeon well away from the nearest birds of their species, many of which were still present. The female was bobbing her head up and down vigorously, while the male was swimming towards her doing the same. She turned away from him, holding her head low to the surface of the water, and he mounted her back, remaining there several seconds. When he dropped off both birds began ducking their heads, throwing water over their backs. Then suddenly they began darting here and there, splashing and diving beneath the surface. This ended, both flew a few yards, settled again and began preening.

I have seen the mating of the Red-breasted Merganser on the Exe estuary in each month from December to March inclusive. Before coition the behaviour has always been the same. For several minutes the female will float low on the water with her neck held out rigidly before her at an angle of about 30° while the male assiduously preens his scapulars or makes forward pecking motions with his head, All the time both birds are repeatedly turning slowly so as to keep near each other. Coition eventually takes place, the male holding the female by the nape feathers.

Behaviour after this varies somewhat. The male immediately displays on dropping back to the water and the female ducks her head several times beneath the surface and flaps her wings, either in that order or the reverse. On one occasion, however, she first vigorously forced herself forward over the surface of the water, the male suddenly diving and she following. On coming quickly to the surface she began preening herself and flapping her wings. On another occasion, after displaying, the male forced himself along the surface of the water, a common habit during courtship, and then plunged violently beneath it. On reappearing he swam towards the female with his head resting well back between his shoulders, crest extended and beak elevated, also a common posture during courtship.

R. G. ADAMS.

RED-NECKED GREBES IN LEICESTERSHIRE.

THE year 1946 was an exceptional one for Red-necked Grebes (*Podiceps g. griseigena*) in Leicestershire. One was observed throughout January of that year at Swithland Reservoir by numerous members of the Leicestershire & Rutland Ornithological Society. On the same waters, a bird in full breeding-plumage was seen on April 8th. Yet another, a juvenile moulting to first winter plumage was present from September 21st to 24th, and a bird in winter plumage was on the same waters from October 26th to November 4th.

At Thornton Reservoir, an adult was present from October 20th until December 8th, being seen to change gradually into full winter plumage.

The species was seen once in both 1943 and 1944, prior to which it had been recorded only five times in the county over a period of more than a century.

F. A. BAK.

STOCK-DOVE ALIGHTING ON WATER.

IN view of the fact that *The Handbook* mentions only one record of alighting on water in this species, the following observation may be of interest. In the late afternoon of April 30th, 1946, the writer in company with E. R. Parrinder and R. C. Homes saw a number of Stock-Doves (*Columba œnas*) rising from the bank of Lyttleton Reservoir, Middlesex. Several swooped very low over the water and one actually alighted on the water for a few seconds.

E. O. HÖHN.

[For another record, see *antea*, p. 119.—EDS.]

LATE SINGING OF STOCK-DOVE.

WITH reference to Mr. F. M. Firth's note (*antea*, p. 23) of a Stock-Dove (*Columba œnas*) in song on August 16th, 1946, I have the following records of song in this species: August 11th, 1940, August 13th, 1942, August 10th, 13th and 16th, 1943 (all near St. Albans); August 12th, 13th and 14th, 1944 (near Chipping Campden); August 9th and 12th, 1945 (near Hastings). It would appear that *The Handbook* chart's blank for the second quarter of August is not justified. A. A. WRIGHT.

WITH reference to F. M. Firth's note on this subject (*antea*, p. 23), I heard a Stock-Dove (*Columbus œnas*) singing on August 12th, 13th, 17th and 18th, 1944; August 20th, 1945; August 8th, 14th, 17th, 19th and 23rd, 1946, all near Bromsgrove, Worcs.

F. FINCHER.

WOOD-SANDPIPER IN WARWICKSHIRE.

ON the evening of August 13th, 1946, I was standing near the sandy border of a small lake in a sand and gravel quarry near Coventry, when a Wood-Sandpiper (*Tringa glareola*) flew past within four yards of me and pitched near by. Making use of good cover offered by the tall reedmace, I was able to approach to within three yards of the bird.

In flight, the general appearance of the bird, seen in good light, was much lighter than that of the Green Sandpiper (*Tringa ochropus*), while the white on the rump, though conspicuous, was far less extensive than in that species. The barring on the tail was also a noticeable feature. The wings and upper-parts were warm dark brown, liberally spotted with buff, but as the bird was flying low over the water, the undersides of the wings were not seen.

The bird called several times in flight, a clear, high-pitched "chiff-iff-iff," similar to the notes uttered by the Wood-Sandpiper I recorded in the same locality on May 9th and 10th, 1946 (*antea*, Vol. xxxix, p. 285).

The bird, which I conclude was a juvenile, appears to be the third recorded in Warwickshire, as Mr. C. A. Norris informs me that the bird I recorded in May was the second for the county and the first since 1898. The fact that certain areas of Warwickshire have been little watched, suggests that this species may be less rare than the few records indicate. R. W. M. LEE.

NEST OF COMMON GULL WITH FIVE EGGS.

ON May 16th, 1946, Mr. H. Neal and I found a small colony of Common Gulls (*Larus c. canus*) on Loch Lydoch, Perthshire. The colony consisted of about ten pairs, most of which had commenced their nests. There were two nests containing five and three eggs respectively. We were not at all certain whether the nest containing five eggs belonged to two or more birds, as the eggs were all slightly different, and we were quite unable to divide them into two or more clutches.

Five eggs in a clutch have only been reported twice according to *The Handbook*. A. E. BILLETT.

THE WAXWING INVASION.—We thank the large number of correspondents who have supplied details of Waxwings (*Bombycilla g. garrulus*) seen during the invasion of 1946-7. A report is being prepared and any readers who have records which they have not sent in are asked to do so immediately.

UNUSUAL NUMBERS OF ARCTIC TERNS INLAND.—At the end of April terns in quite unusual numbers were noticed in several inland districts and in all cases known to us where they were examined by experienced observers proved to be predominantly, if not exclusively, Arctic Terns (*Sterna macrura*). We should welcome information from any readers who have had a similar experience and have not already reported it.

BLACK-HEADED GULLS "UP-ENDING."—With reference to Mr. J. Taylor's note on "up-ending" of Black-headed Gulls (*Larus r. ridibundus*) (*antea*, Vol. xxxix, p. 348), which does not appear to have been previously recorded, we have now received several further reports of this behaviour. Mr. A. R. Jenkins observed it near Bari, Italy. He watched about a dozen birds swimming in shallow water some thirty yards off-shore, and every minute or so each bird "up-ended," remaining half-submerged for at least three seconds. Similar behaviour was observed in this locality on many occasions in February and March, 1945. On October 22nd, 1946, a single bird was watched by Mr. A. W. Boyd repeatedly "up-ending" in a flash at Marston, near Northwich, Cheshire. The water was fairly shallow at that spot and on one or two occasions the gull was seen to put its head under water without raising its tail at right angles. It was seen to catch a fish which was too big to be swallowed at once. It took fully five minutes to dispose of its catch and from time to time dropped it, rose in the air to dive for and recover it, and finally gulped it down. On November 7th, 1946, Mr. David C. Pegram observed two Black-headed Gulls "up-ending" in shallow water near the edge of the lake in St. James's Park, London.

THE EFFECTS OF THE COLD SPELL.—We shall be glad if readers will supply us with information on the effects of the severe weather in the latter part of the winter both on mortality, movements and behaviour of birds as observed at the time and also on the numbers of resident birds in the present breeding-season. Particulars of unusual visitations of waterfowl—swans, ducks, grebes, divers, etc. —which appear to have been connected with the hard weather will also be welcomed. Where possible it would be very helpful if recorders and editors of county reports could supply us with summaries for their areas.

It may be recalled that we also asked for particulars of the effects of the much less prolonged and serious cold-spell in January, 1945 (*antea*, Vol. xxxix, p. 32). A number of correspondents sent in valuable data, but information for the country as a whole was very fragmentary. For this reason and on account of the severe pressure on our still limited space, no report on this cold spell has been published, but reference to the more important points in the data received will be incorporated in the full report which we propose to publish on the winter of 1946-7.

A TYPE COLLECTION OF PELLETS.—In a brief paper published in 1944 (*antea*, Vol. xxxviii, p. 50) the Editor drew attention to the very scanty data on the production of pellets by Passerine and various other birds, in contrast to those of hawks, owls and herons, which have been comparatively fully studied. As a result of an appeal for material a number of samples were kindly sent in by correspondents. We wish to remind our readers that we are still interested in this subject and that it is now proposed to form a type collection of pellets at the Oxford University Museum. For this purpose we shall welcome specimens in good condition of pellets of *all* species of birds, except herons, whose origin is definitely known. Much weathered pellets or those whose origin (i.e. the species of bird producing them) is in doubt are not desired. Where possible a substantial number of pellets from the same source will be welcomed. It is necessary to emphasize that except in the case of the most solid and coherent types *each individual pellet* should be done up in tissue paper or cotton-wool (the former is recommended) and the specimens packed in a tin or box strong enough to resist damage in the post, together with particulars of species, locality, date and any other relevant information. Pellets which are noticeably damp or wet should be dried before packing. They should be addressed to B. W. Tucker, Dept. of Zoology, University Museum, Oxford.

REVIEW.

A Handlist of the Birds of Palestine. By Capt. Eric Hardy, 1946. Publ. (typewritten) by Education Officer-in-Chief, G.H.Q., M.E.F., pp. 53.

In compiling his *Handlist of the Birds of Palestine*, Capt Eric Hardy has used most of the available literature, as well as the unpublished card-index of the Palestine Ornithologists' Union, and has had access to the best collections of birds of the area, including the magnificent collection of Dr. Walter Moses at Tel Aviv. It is unfortunate that he has not made better use of his material, since this short work contains so many errors (there are 120 in the scientific names alone) that, unless authorities are quoted—which they seldom are—it is impossible to judge the reliability of Capt. Hardy's information ; the very unlikely statement, for example, that the Citril Finch (*Carduelis citrinella*) has nested in the Lebanon is unsupported by authority. Nor does the author always quote correctly : he misquotes Colonel Meinertzhagen, the present reviewer and even himself ! Compare his statement (p. 8) that young Rose-coloured Pastors "had obviously been bred" in the

Lebanon in 1945, with that in the *Ibis* (Vol. 88, p. 398, 1946) where breeding is "strongly suggested."

The status of a number of species is questionably or incorrectly given : it is not easy, for example, to accept his categorical assignments of status to the Palestinian eagles, birds which are notoriously difficult, and in some cases impossible, to distinguish in the field. Capt. Hardy sometimes shows too great a familiarity with the species discussed, as when he gives a record of the two races of Dunlin being distinguished in the field, sometimes too little : thus *Emberiza buchanani* is made a race of *hortulana* ; the name White-tailed Lapwing is given to *Chettusia gregaria*: and it is said that *Phœnicurus ph. mesoleuca* "cannot usually be distinguished in the field" from *Ph. ph. phœnicurus*.

Capt. Hardy is proposing to produce "a final Handbook on the Birds of Palestine" : to be final, it will need more care and criticism than has gone to the making of the present volume. M.F.M.M.

LETTERS.

ASSOCIATION OF THREE ROOKS AT NEST.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to the letter by B. M. A. Chappell (*antea*, Vol. xxix, p. 352) regarding the association of three Rooks (*Corvus f. frugilegus*) at one nest. For a number of years I have had a local rookery under almost daily observation and more than once at building time I have seen the hen Rook receive twigs from two male birds. One of these nests was at the extreme end of the rookery and could be easily watched without confusing them with the other Rooks using the rookery. What convinces me of this fact of three birds using the nest is that I have seen one bird deliver a twig to the hen bird, and hardly has he left the nest before another bird has arrived and been received in the same manner and the twig accepted. My own assumption at the time, was that seeing that scores of Rooks at this rookery had been poisoned (in February, 1943) this had caused a more than usual unbalance of the sexes. FRED DEAN.

STATUS OF PEREGRINE IN BRITAIN.

To the Editors of BRITISH BIRDS.

SIRS,—I am writing a monograph on the Peregrine Falcon (*Falco p. peregrinus*). I shall, therefore, be most grateful if any of your readers will kindly give me what they consider to have been its status (number of eyries) *just* prior to the war and what the status is *now*, for England, *North* Wales and the whole of Scotland. Mr. C. J. Carroll is taking the matter up in Eire, and Mr. H. T. Malcomson in Northern Ireland ; while Mr. G. C. S. Ingram has already given me details for *South* Wales. I have my own views, of course, but many heads are a lot better than one. I wish to thank Mr. B. W. Tucker for his courtesy in printing this request. JOHN WALPOLE-BOND.

11, Tennis Road, Hove, Sussex.

AGGRESSIVE BEHAVIOUR OF CORN-CRAKE AND RINGED PLOVER.

To the Editors of BRITISH BIRDS.

SIRS,—I was much interested in the paper on the "Aggressive Display of the Ringed Plover" by Messrs. Edwards, Hosking and Smith in your January number (*antea*, pp. 12-19). The reference the authors make, in the discussion on their results, to the results I obtained in similar experiments with Corn-Crakes (*Crex crex*) is, however, not quite accurate.

The aggressive displays against the dummy which occurred in my experiments were not due to any control of mine such as using the crake "call" when the bird was in the presence of the dummy. When this was done the only effect on the bird's behaviour was that it more or less ignored the dummy and either stood in one position or walked around craking incessantly ; the bird only commenced a display to the dummy when I stopped making the crake call. The aggressive displays or attacks without a display were witnessed on only three or possibly four occasions out of some dozens ot displays. One attack, one aggressive display and the "possible" attack all occurred in the first fortnight in May, when the birds were possibly not yet in full breeding condition : the fourth occasion occurred on June 9th, when a beautiful sequence of song, "combat," aggressive display, and finally attack was seen. The striking difference between the normal reaction of a Corn-Crake to the dummy (sexual display) and that of a Ringed Plover (aggressive display) is probably partly due to the fact that the Corn-Crake is polygamous : a strange female is not a territorial intruder. Indeed the female takes no part at all in the defence of territory. The difference in behaviour may also to some extent be due to the difference in habitat. A Ringed Plover with a small territory of open ground relies on sight to detect an intrusion : its aggressive reaction is in consequence governed by a "visual pattern." A Corn-Crake occupying a much larger territory (at least five times as large), which is covered with thick vegetation, relies on the sound of the intruder's song to detect an intrusion, so that its aggressive reactions are largely governed by a "sound pattern." A Ringed Plover territory intrusion, under natural conditions, rarely comes to a fight. The owner runs at the intruder and displays and that is sufficient. Equally a Corn-Crake intrusion is usually settled in the owner's favour by a song "combat" without the birds ever seeing each other.

The necessity for the presence of two birds to excite aggressive behaviour, which the authors deduced from their observations, is, I think, purely a result of the experimental conditions. What was necessary was probably movement, which the dummy by itself could not supply. When making instensive observations in a large Ringed Plover colony a few years ago I frequently saw the sitting bird, in the absence of its mate, leave the nest to drive intruders off the territory.

In connection with the question of the function of coloured adornment I would point out that the identification of sex in species in which the sexes are alike is not always made by the reaction to a display or other behaviour. In the Corn-Crake the identification is made by the response to the song. In my experiment the approaching male normally stopped and craked when the dummy was first seen and only started to display when the dummy failed to respond. Some birds made the sexual display immediately the dummy was sighted : the birds which made an aggressive display did not change to a sexual display when the dummy failed to respond. A. G. MASON.

A HISTORY OF THE BIRDS OF CO. DURHAM.

To the Editors of BRITISH BIRDS.

SIRS,—I am collecting material for a History of the Birds of the County of Durham and shall be most grateful for any notes or records that any of your readers may be able to send me which contribute information with regard to the past or present status, distribution or habits of any species therein.

The County has been much neglected by ornithologists in the past. The only published list of its birds of any note was that compiled by Canon H. B. Tristram for the *Victoria County History of Durham* in 1905, now long out of date. It is true that P. J. Selby, in 1831, and John Hancock, in 1874, included Durham within the scope of their respective " Catalogues " of Northumberland and Durham ; but as they both lived and worked in the former county they paid scant attention to the latter and gave it no separate nor detailed consideration.

Two hitherto unpublished MSS. on the birds of the County have recently come to light, one dated 1834 and the other 1840, so with these as a basis I propose to show the changes which have taken place in the course of a century, as well as the present status of each species.

Notes should be sent to me at the address given below.

GEORGE W. TEMPERLEY.

The Hancock Museum, Newcastle-upon-Tyne.

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Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

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NOTES ON TERRITORY IN THE COOT

BY

S. CRAMP.

BESIDES the many ornamental waterfowl in St. James's Park, London, are several pairs of Coot (*Fulica a. atra*), which breed there annually, and their territorial behaviour was studied over a period of more than 11 months, from June 29th, 1943, to June 10th, 1944; covering parts of two breeding-seasons. The aggressive behaviour of this species made it comparatively easy to map their various territories and the position at the beginning of July is shown in Figure 1 below. It will be seen that six pairs were closely concentrated at the western end and another two at the eastern, with a large neutral area, holding at this time some 18 non-breeding birds. The Coots seemed to prefer to build their nests on the land or close to it whenever possible (only two nests were built in the middle of the lake and one of these, X, used a concrete wall, which runs across the lake about a foot below the surface, as a foundation) and as the outside banks were subject to human interference and Duck Island was the favourite nesting site for the duck they were in practice restricted to the two small islets at the eastern end (one of which was used by pair Y) and the larger island at the western end around which four pairs were gathered. A territory of about one acre in extent would seem to be the normal (thus, A, 1.1 acres, X, 1.1 acres, D, 1.0, E, 0.9 and Y, 0.8 acres in extent approximately), but three of the territories round this western island were much smaller—G, 0.6, C, 0.5 and B, 0.3 acres approximately.

As the Coot is normally aggressive in the defence of its territory, such severe overcrowding led to many fights. The case of pair B is of particular interest, for not only did they hold by far the smallest territory, less than a third of the normal, but in this restricted space many duck gathered to be fed by visitors at a spot where the public path adjoins the water's edge, and the adjoining pair C, with two growing young to feed, were frequently tempted over the boundary to secure food. On July 3rd, the two young of pair B had recently hatched, but the male was almost wholly occupied in fighting. In the space of an hour he drove out an intruding bird from C no less than 30 times, besides repulsing four invasions from A, repeatedly menacing Mallards (*Anas p. platyrhyncha*) being fed at the edge, and even on one occasion attempting to drive away a female Ruddy Sheld-Duck (*Casarca ferruginea*). On July 11th he was again seen attacking C as well as a Moorhen (*Gallinula ch. chloropus*); by July 15th one of the young had disappeared and the efforts of the parents to feed the survivor were hampered by the persistent piracy of a pair of Ruddy Sheld-Duck, which forced them to drop the food as soon as they brought it to the surface. Still more fierce fighting with C was seen on July 16th, after which they must have given up the struggle, for neither the adults nor young were seen again in the territory, which was entirely appropriated by pair C, who thus made up their own territory to the more normal size of about 0.8 acres. The young of C proceeded to use B's nest as a favourite resting place. It is noteworthy that pair D, on the western boundary, whose territory was already about 1.1 acres, made no attempt to seize any of this abandoned area.

At this time (mid-July) pairs A and C had just hatched their second brood; they were the only two pairs out of the six which were double-brooded. Pairs D and X were only just hatching their first brood, and although pairs Y and F by then had almost full-grown young they did not lay again. Pair E failed to breed. They attempted a nest in shallow water some two feet from the southern bank, but although a firm foundation was made it never rose above water-level, probably because of interference from human beings who used to walk along the grass verge at this spot. Nevertheless, they maintained their territory and were seen fighting both with birds from D and with the non-breeding Coots from the neutral area, though as the latter numbered less than 25 at this time such intrusions were infrequent. About this time pair A were seen displaying, two weeks after their second brood had hatched, facing each other with beaks touching the water, neck arched, and pecking at each other's neck and head, whilst both A and D were seen to add material to the nest after the eggs had hatched, ten and eight days after respectively.

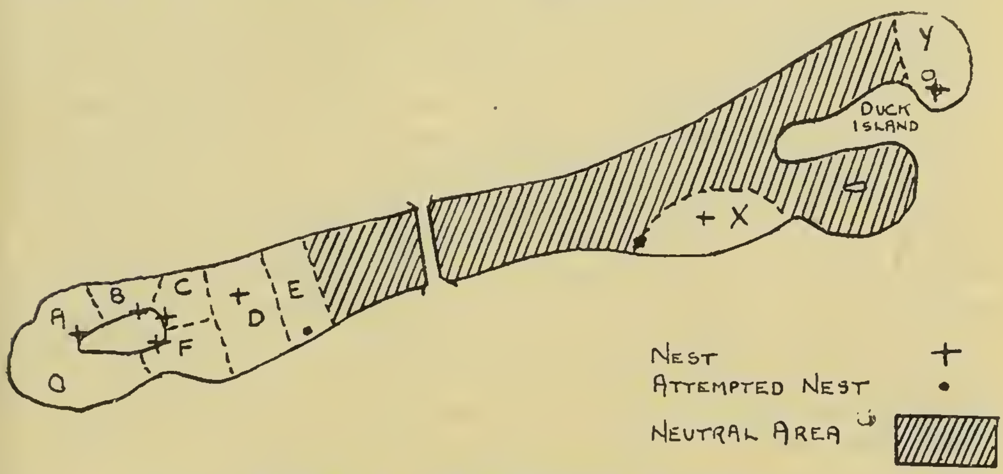

FIGURE I. TERRITORIES IN 1943.

As the young became independent they gradually left the parental territories and could be seen with the birds in the neutral area. The age of leaving the territories varied somewhat; thus in the two broods where the date of hatching was known definitely it was 68 and 74 days after hatching (pair A) and 66, 72, 72 and 98 days after hatching (pair D). This last was a backward youngster with a malformed wing, so it would seem that the normal period is about ten weeks. In the case of pair D the young were first seen to dive for food 32 days after hatching (though one youngster of pair X dived at less than four weeks old), but they were still receiving some food from the parents up to 54 days after hatching, so that they left the territories about two weeks after becoming independent in feeding. It is not known whether they left voluntarily or were driven out by the adults, although no display of hostility towards their young was seen. By September 12th only two young were still in the territories, and territorial aggressiveness among the adults seemed to be increasing. Continual fierce fighting among all four birds of C and D occurred ; then one bird from D, after driving off a Black-headed Gull (*Larus r. ridibundus*) which settled on the empty nest, chased both birds from E, half-flying, half-pattering over the water for some distance, then postured with its back towards them, secondaries and tail raised, whilst it watched them with head twisting anxiously from side to side. On September 26th pair D were courting on the nest, nibbling each other's head and neck, but they showed no hostility when a Black-headed Gull landed on the nest next to them. On October 2nd and again on October 10th, all four birds of pairs D and E (the non-breeding pair) were engaged in fierce fighting, and only one pair (X) seemed to have lost their aggressiveness, allowing other Coots to feed in their area and not protesting when various other species, Moorhen, Black-headed Gull and Mute Swan (*Cygnus olor*), used their nest as a resting place. Visits in November and December were less frequent, but fighting continued; thus on November 21st all four birds of C and F were engaged in the fiercest fighting yet seen, the combatants rising high in the water with breasts almost touching.

All this time the number of Coots in the neutral area had been steadily increasing, reaching a maximum on January 2nd, as the following representative figures show :—

1943		1944	
July 18	18	January 2	81
July 28	25	February 12	62
September 12	52	April 7	49
November 6	65	June 4	14

At the time of this maximum, when the total population of the lake was also increased by some 200 Tufted Duck (*Aythya fuligula*) and over 300 Black-headed Gulls, about 30 Coots from the neutral area flowed over into E's territory. No fighting was seen, and the rightful owners could not be distinguished from the invaders ; instead of the territory being compressed under pressure as Huxley (1934) found in a similar case it appeared to have been abandoned, but by February 6th this pair had recovered most of their old area and were seen fighting vigorously to regain the remainder. A week later they had succeeded, and a flock of 27 Coots feeding near by in the neutral area did not attempt to trespass.

By the beginning of April nesting operations were in full swing and the territories were as shown in Figure 2. Four pairs were sitting (C, F, Y and Z); D and E were building; A, X and H were maintaining territories, but had not yet started to build nests. It will be seen that the territories were remarkably similar to those in 1943, save that a new pair Z had successfully built at the eastern end on a site provided by the construction of a new concrete wall projecting just above the water-level, and at the western end a new pair H were attempting to wrest a territory from portions of C and D's old areas. Pinned against the bank, with an area of less than 0.2 acres (smaller even than the ill-fated territory of pair B in the previous year) and no very suitable nesting site, they were engaged in constant fights with birds from both C and D. The struggle continued until April 11th, after which pair H were not seen again.

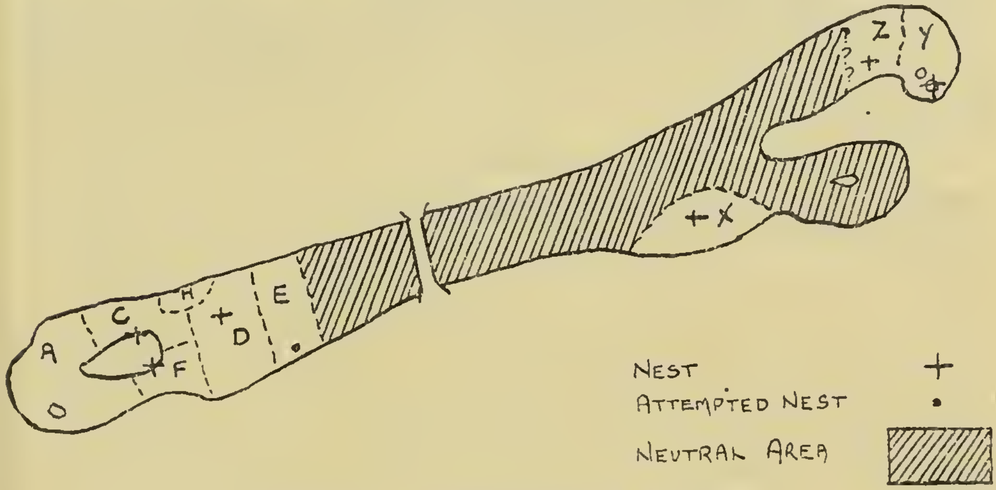

FIGURE 2. TERRITORIES IN 1944.

It is interesting to note that of the four pairs that were the first to lay in 1943 (A, C, F and Y) three were also the earliest in 1944. The exception, pair A, were not seen to start building at all up to June 10th, probably because a pair of Mute Swans built a nest at the end of the island in their territory. By the beginning of June all the other pairs, except pair E, either had young or were sitting. Pair E, after failing to breed in 1943, but maintaining their territory throughout, except for the brief period in January, began to build again in April at a spot very close to the old site; this time they succeeded in raising the nest a few inches above the water-level, but the structure was never finished and no eggs were laid. Yet, although they had failed to breed for the second year in succession, they were still maintaining their territory when I ceased observations in the middle of June.

Generally, the Coots reserved their aggressive behaviour for adults (and sometimes young) of their own species, but were from time to time seen to attack other species. Thus pair B attacked

Mallards, Ruddy Sheld-Ducks (females only) and Moorhens ; pair C Mallards and Moorhens (on one occasion a bird of this pair took up a threatening posture towards a pair of Mute Swans, but did not press the attack) ; pair D Mallards and Black-headed Gull ; and pair X Tufted Duck and young. One of the young of pair D, when still being partly fed by its parents, attacked and drove away a Mallard.

CONCLUSIONS.

1. Territories were normally about an acre in extent, though owing to the scarcity of nesting sites some were as small as 0.5 acres. An attempt to maintain and breed in a territory of 0.3 acres was unsuccessful.
2. With two exceptions of short duration the territories were maintained throughout the winter months.
3. One pair which attempted, but failed, to breed in both 1943 and 1944, nevertheless maintained its territory throughout, except for a short period in winter when pressure from migrant Coots was at its greatest.

REFERENCE.

HUXLEY, J. S. (1934). "A Natural Experiment in the Territorial Instinct." *Brit. Birds*, Vol. xxvii, pp. 270-277.

THE HATCHING AND FLEDGING SUCCESS OF SOME COOT

BY

RONALD ALLEY AND HUGH BOYD.

Introduction.

The following data were obtained during the summer of 1946, from observations carried out at Blagdon Reservoir, North Somerset, by kind permission of the Bristol Waterworks Company. During the most critical periods we were able between us to make almost day-to-day and day-long visits to the reservoir.

We concentrated upon the Coot (*Fulica a. atra*) population of two adjacent bays. Choice of these bays was due to their convenience for observation. The conditions there prevailing, with regard to growth of vegetation, depth of water, disturbance by man (the lake is intensively fished during the summer), and in other ways, were not considered atypical of the reservoir as a whole. Of the fourteen pairs of Coot that attempted to nest within the study-area, seven were in their territories when we first watched the bays in March, one arrived late in that month, and the remainder came in a rush within ten days in May.

Because of inclement weather, and especially a rise in the water-level, which delayed the emergence of growth suitable for nesting purposes and swamped two early layings, nesting was somewhat late. In the study-area the first egg was laid, by IV pair, on April 23rd. This was taken by crows and no further egg was laid until May 12th. Most pairs lost their first clutches in some manner, and no pair in the two bays (and very few elsewhere) reared more than one brood. VI pair alone laid after hatching young, and here the circumstances were of considerable interest :

June 27th.	Four eggs (marked by us) and two newly-hatched chicks.
June 28th.	One fresh egg laid alongside the other four.
June 29th.	Three young and five eggs—one addition.
June 30th.	Three young and six eggs.
July 1st.	Nest found wrecked, eggs gone.

We are satisfied that the fresh eggs were laid by VI female. Many cases of compressed cycles have been recorded in the literature (though not for the Coot), but we know of none where the overlap has been so marked.

A certain amount of promiscuous laying took place within the study-area, and one pair (O) actually took over the incubation of I pair's second clutch of nine eggs, adding three of their own. As all eggs were, however, laid by the fourteen pairs, this remarkable, though perhaps characteristic, behaviour does not invalidate a quantitative treatment of hatching and fledging success as such. It is hoped to treat of nesting-behaviour in a subsequent paper.

HATCHING.

In all, 121 eggs were laid in the study-area, and of them 42, or 34·7%, were hatched.

Egg-loss was therefore considerable. The following table summarizes our knowledge of the factors responsible :—

TABLE I. CAUSES OF EGG-LOSS.

Cause of loss.	*No. of pairs affected.*	*No. of eggs lost.*	*% of eggs lost.*
Swamping	2	4	5
Infertility	4	4	5
Abandonment	2	3	4
Knocking-out	3	5	6
Burying	3	10	13
Predators :—(*a*) Man ...	3	16	20
(*b*) Crows ...	7	19	24
(*c*) Unknown	2	11	14
Undetermined Factors ...	4	7	9
	Total	79	100

Infertile eggs. Three of the infertile eggs were found floating a few feet from the nests in which they had been laid and are thought to have been deliberately ejected : one had been sucked. The fourth was left for several days in the nest of L pair, after the young had been moved (see below). Subsequently it was found submerged near the nest. We have no evidence as to the agency responsible for this.

Burying. Loss by burying was due to the over-layering of eggs by the addition of material to the nest after they had been laid. The nest may be far from complete when laying begins, and materials may continue to be added so long as the nest is in use. Eggs may be wholly built-in within 48 hours. We have retrieved such eggs from abandoned nests four or more inches below the surface. Effective incubation ceases, of course, when the eggs are thus covered. The large number (10) of eggs lost in this way is due to the aberrant behaviour of O pair (see above), who buried no less than six.

Crows. As may be seen, crows destroyed many eggs : their toll may well have exceeded 19. The open-cup nest of the Coot is very vulnerable to such depredation. Carrion Crows (*Corvus c. corone*) made frequent patrols along the shoreline, alert to pitch on any unguarded nest. VIII and IX pairs, nesting along a particularly exposed and crow-haunted stretch, lost nine of their ten eggs to crows. (The other was knocked out by one of VIII pair). Magpies (*Pica p. pica*) hunted the shoreline less often, but one was seen to be driven from III pair's nest by the owner, suggesting that they probably took some toll.

Unknown predators. It is likely that some of the eggs placed in this category were removed by man. This class we use to cover the loss (not simultaneous) of two entire clutches, including that of VI pair, noted above.

Knocking-out. Not infrequently, the Coot knocks out eggs from the shallow cup of the nest when leaving it in a hurry. Eggs falling into the water are lost, but those remaining on the side of the nest, or on the runway (where present) may be hooked back into the cup.

Abandonment. Within a few hours of being hatched, chicks are led to a brooding platform some yards from the nest. Very often one adult will attend the young on their new platform while the other incubates such eggs as remain. As hatching may be spread over three or four days, the pull of the young proved sometimes too great, and the last eggs were abandoned. These were subsequently taken by crows.

FLEDGING SUCCESS.

In all, 28 young are thought to have fledged, 23.1% of the total of eggs laid, or 66.7% of eggs hatched; 24 of the young (the product of six pairs) remained with their parents in the latter's territory until seen to fly. The other four disappeared before they were seen to fly, but may fairly confidently be counted as fledged. In one case the parent birds and their three young abandoned the territory when the young were 7½ weeks old, and are believed to have joined the flocks present in the area at this time. III pair's single surviving young disappeared when aged about 9 weeks, and a grey-bellied newcomer to the flock in the neighbouring bay is believed to have been it.* (Although we colour-ringed all the young produced in the two bays, we could seldom glimpse the combination on a bird whose identity puzzled us).

Mortality of young was severe in the first few days of life, decreasing up to the end of the third week, and slight thereafter. Generally young would disappear without trace; only in the few cases recounted below was the cause of death ascertained.

One young (10 days old) was killed in our sight by the adults into whose territory it had wandered. Attacks by territory-holding Coot upon straying young are very frequent—until the young, by painful experience, learn (at about three weeks) to keep within the boundaries of their parents' territories. An adult will advance upon a trespassing chick, grab it around the back of the head, lift it clear of the water, and viciously shake and peck it. When released, the victim floats prostrate, so still the spectator thinks it dead, and then slowly raises its head and makes off ; sometimes it is so dazed and lost that it goes in the wrong direction—straight in to another attack. If the young Coot was not amazingly tenacious of life, very few could survive to be fledged. The number actually lost as the result of such assaults cannot be assessed ; but the recovery of the body of another chick well within the territory of a neighbouring pair suggests that it may be considerable. The form of assault practised by adults on intruding young is the same as that used at times by parents on their own offspring, though in general more vigorous and persistent. Consideration of the significance of these parental assaults is outside the scope of this paper, but it may be remarked that they might well be a contributory cause, if no more, to the death of weak or sickly young.

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*This young returned to breed in the study-area in 1947.—Authors.

In the first week or so of life young Coot may be endangered by their lack of strength. An incident observed outside the study area illustrates the hazards to which they are exposed. One of us (R.A.) approached a chick aged about seven days, which dived in alarm. Surprised by its failure to reappear, he looked into the water, and " saw it motionless about six inches below the surface. For some seconds I watched to see what it intended, then perceived it was held across the nape by a thick strand of rush, and could not emerge " (extract from field notes). When released the chick was stiff ; later it was found dead.

One of the young in the study-area, three days old, was found floating alongside the nest in which it was hatched. It proved to be unusually light (we had previously noted its undersized appearance), and on examination a Cestode worm* was found constricting the intestine. It seems very likely that the parasite was responsible for the death of the bird, though the case presents difficulties, which it is not proposed to discuss here. No other instance of death resulting from disease or parasites was established.

Danger to young from crows must be limited to the first few days of life, when the chicks pass most of the time on the nest or the " brooding platform." No evidence was obtained to show whether in fact crows did attack any young in the area. There are no hawks resident in the neighbourhood likely to prey on young Coot. Attacks on young by Great Crested Grebes (*Podiceps c. cristatus*) and Little Grebes (*P. r. ruficollis*) were seen, but did not compare in ferocity with the assaults of adult Coot ; deaths resulting from attacks by grebes seem improbable. No evidence that ducks killed any young was obtained, though " hostile " manifestations by them were observed.

Pike are rare in the reservoir, but eels and trout are numerous. The latter attain a large size. If fish took any young on the study-area, it may be presumed that these two species were responsible. However, we failed to establish any record of such an occurrence.

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*Dr. H. D. Crofton, of Bristol University, has kindly identified this worm as *Dibothriocephalus* sp.—Authors.

SUMMARY.

1. The nesting success of 14 pairs of Coot was closely studied during the summer of 1946.

2. 121 eggs were laid by these pairs, and of them 42, or 34.7% hatched. Factors responsible for egg-loss are tabulated and discussed. Nearly one-quarter of the egg-loss was caused by activities of the parents.

3. 28 young are thought to have fledged, 23.1% of the total of eggs laid, or 66.7% of eggs hatched. Causes of mortality are detailed for a few cases: the evidence suggesting that adult Coot are a considerable factor here also.

THE INDEX OF HERON POPULATION, 1946

BY

W. B. ALEXANDER.

THE number of reports on sites occupied by Herons in 1946 which were received at the Edward Grey Institute was 171, or 34 more than in the previous year. Of these 107 were in England, 8 in Wales, 37 in Scotland and 19 in Ireland. We are indebted to 60 informants, of whom a number have collected information from friends and correspondents. Mr. A. Watson has sent information on 27 heronries in the counties of Aberdeen and Banff all of which he visited personally ; the Rev. P. G. Kennedy on 14 in five counties of Eire ; Mr. R. Chislett on seven in Yorkshire ; Mr. R. A. Hinde on seven in Norfolk ; Mr. W. F. Davidson on six in Cumberland and Westmorland ; and Mr. G. R. Porter on five in Lincolnshire.

Mr. A. W. Boyd again supplied particulars for all known sites in Cheshire and South Lancashire ; Mr. C. A. Norris visited all the known sites in Warwickshire ; and members of the Oxford Ornithological Society and London Natural History Society assisted the writer in obtaining particulars for all the heronries known in a large part of the Thames drainage area. Lord David Stuart has supplied information on the heronries in the Island of Bute and Mr. W. S. Cowin on those in the Isle of Man.

We have again received information about a number of heronries not previously recorded. Of these Mr. A. Watson has reported six in Aberdeenshire with 7, 4, 3, 3, 2 and 2 nests respectively and three in Banffshire with 6, 5 and 2 nests, as to whose previous history there is no information. Mr. D. R. Anderson reports a heronry of 18 nests in Angus, which has been in existence for over 22 years and had at least 12 nests in 1944 ; and Lord David Stuart reports one in Bute with two nests, which was established with two nests in 1940 and has had the same number each year since.

Mr. R. Chislett reports an old colony, hitherto unrecorded, near the River Ure in Yorkshire, which contained three nests this year ; Mr. W. F. Davidson one containing six nests in Cumberland, which has been in existence for at least 40 years, and one of two nests in Westmorland ; and Major J. E. King one of about 16 nests on an island in a lake in Suffolk, which is known to have existed for several years, and may be of considerable antiquity, but reports as to its age are conflicting.

Mr. C. A. Norris reports a heronry of 14 nests in a park in Warwickshire, where a single pair nested for several years prior to and including 1941 and the numbers have since increased, the birds probably coming from Ragley Park, 3¼ miles away, where the heronry has declined from 15 nests in 1939 to two in 1946. A good many reports of single nests in new sites have also been received but we do not record these as heronries, though, as in the case just mentioned, it is always possible that they may be the forerunners of colonies. In two localities in Devon single pairs have now nested for two years in succession, which suggests such a possibility

Of the heronries counted in 1946, 107 were also counted in 1945 when they contained 1,878 nests. In 1946 they again contained 1,878 nests, a remarkable coincidence.

Eighty-five of the heronries counted in 1946 were included in the 1928 census when they contained 1,642 nests. In 1946 they contained 1,661 nests, so that on the basis of this sample the index for 1946 as compared with 1928 is slightly over 101 per cent. In 1945 the index based on 1928 was 104, which indicates a decrease for 1946 of about 3 per cent.

For 111 of the heronries counted in 1946 we have figures for one or more years when the population was normal (1928, 1936, 1937, 1938 and 1939). The average total population of these 111 heronries was 2,270 pairs whilst in 1946 it was 2,130. This gives an index of nearly 94 per cent. as against 92 per cent. in the two previous years, an increase of about 2 per cent.

These three different samples thus indicate respectively no change, a decrease of about 3 per cent. and an increase of about 2 per cent. Obviously there has not been much change in the breeding population of Herons and even accepting the last estimate as the most reliable, the increase is surprisingly small in view of the fact that the winter 1945-46 was a mild one, the mean temperature of the coldest month (January) at Norwich being 38.0°F. and at Northwich, Cheshire, 37.5°F. It begins to seem probable that the normal Heron population is now only 92 to 94 per cent. of that prior to 1939, perhaps a measure of the disturbance due to increased tree-felling during and since the war.

The percentages for individual regions as compared with the average are as follows :—

	1945	1946	Change
South-west England	87	93	+ 6
South-east England	——	106	——
Thames Drainage Area	97	81	—16
East England	——	89	——
Midlands	82	88	+ 6
Wales and Border Counties	126	120	— 6
North-west England	91	97	+ 6
North-east England	113	106	— 7
Ireland	93	83	—10
England and Wales	93	95	+ 2
British Isles	92	94	+ 2

Of the areas in which all known heronries were counted that in the Thames Drainage basin is slightly smaller than in some previous years since figures are not available for two small outlying heronries, one in Surrey and one in Essex. The area covered contained 15 known heronries with a total of 295 nests in 1928,18 heronries with 371 nests in 1945 and 18 heronries with 321 nests in 1946. Thus, though there was a decrease of 50 nests, the population was still above that found in 1928.

In Warwickshire, four heronries with 56 nests were recorded in the 1928 census (Stanford Park given under this county is actually in Leicestershire). In 1938 there were four heronries containing 66 nests and, in 1946, five heronries containing 55 nests. The population in 1946 was thus almost exactly the same as in the census year and there is reason to believe that the 1938 figure was too large.

In Norfolk information was obtained for all known sites in the eastern part of the county. In 1928 there were 13 heronries containing 179 nests in this area, though three of these heronries only contained four nests (2, 1 and 1). In 1946 only eight heronries containing 142 nests were found. It is possible that some new heronries may not have been located but it is fairly evident that in eastern Norfolk the Heron population has still not recovered from the effects of the hard winter 1939-40, which was specially severe in East Anglia.

In Cheshire and South Lancashire the eight known heronries contained 242 nests in 1946, four more than in 1945, and a single isolated nest was also reported. The population is thus still well above that recorded in 1928 (173 nests in eight heronries).

It is obviously of interest to know whether the Heron population of islands off the coast fluctuates in correspondence with that on the mainland. The most isolated insular population is that in the Isle of Man where Herons had only nested irregularly prior to 1931, when a heronry of three nests was established. In 1933 this heronry had increased to 10 nests and during the next six years is said to have averaged about six nests. In 1940, after the severe winter, there were only two nests, but in 1941 this heronry contained eight nests and there was at least one nest in a new site. In 1946 there were seven nests in the original heronry, still one in the second site and another single nest in a third locality. It would thus appear probable that nine or ten nests is now normal in the Isle of Man and it is noteworthy that this number was regained in one year after the decrease to two in 1940. In England and Wales, as has been shown in previous reports of this series, decline continued for two years after 1940. In Cheshire and South Lancashire the population took two more years to recover whilst in Norfolk, as shown above, it has not fully recovered after six years.

In the Island of Bute there are at present three heronries containing ten nests (4, 4 and 2). In 1927 there were about 25 nests in one of these in a wood which was felled during the 1939-45 war, when they moved to an adjacent site where there were four nests in 1946. In 1926 there were two nests at another locality where there were four scattered nests in 1946. The third site, as noted above, was colonised in 1940, and has contained two nests each year since. From this evidence, for which we are indebted to Lord David Stuart, it is clear that the present breeding population is much less than it was in 1927, but we do not know whether the great decrease occurred in 1940 or whether it was mainly due to climatic causes or to disturbance through tree-felling.

Mr. Watson has surveyed two areas in N.E. Scotland, but unfortunately earlier information for these areas does not make it possible to judge what changes have occurred in the total population. In S.W. Aberdeenshire (Upper Don and Dee Valleys) six heronries were found in 1946 containing 31 nests. In 1907 and 1908 two of these heronries contained from 20 to 23 nests and these contained 14 nests in 1946. In the 1928 census three of the others were reported, but only contained four nests. These three contained ten nests in 1946. The sixth heronry, containing seven nests in 1946, had not been recorded previously.

In a large area including the whole of northern Aberdeenshire and the Deveron Valley in eastern Banffshire, Mr. Watson found 20 heronries containing 101 nests in 1946. Of these five were recorded as existing in 1908, 1910 or 1911, but the number of nests was only stated for one of them, which contained 14 nests in 1910 and in 1946 contained 15 nests. Two others were recorded in the 1928 census when they contained seven or eight nests. These two contained 20 nests in 1946. Mr. Watson counted eight of these 20 heronries in 1945 when they contained 23 nests. In 1946 these eight contained 30 nests. There is thus some probability that the Heron population in this area is increasing.

In conclusion we must once again express our thanks to all those whose information has enabled us to prepare this report and request that particulars for 1947 may be sent to the writer at 91, Banbury Road, Oxford, as soon as possible.

STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

IX. THE MEALY REDPOLL AND RED-SPOTTED BLUETHROAT.

Photographed by
H. N. SOUTHERN AND R. CHISLETT:

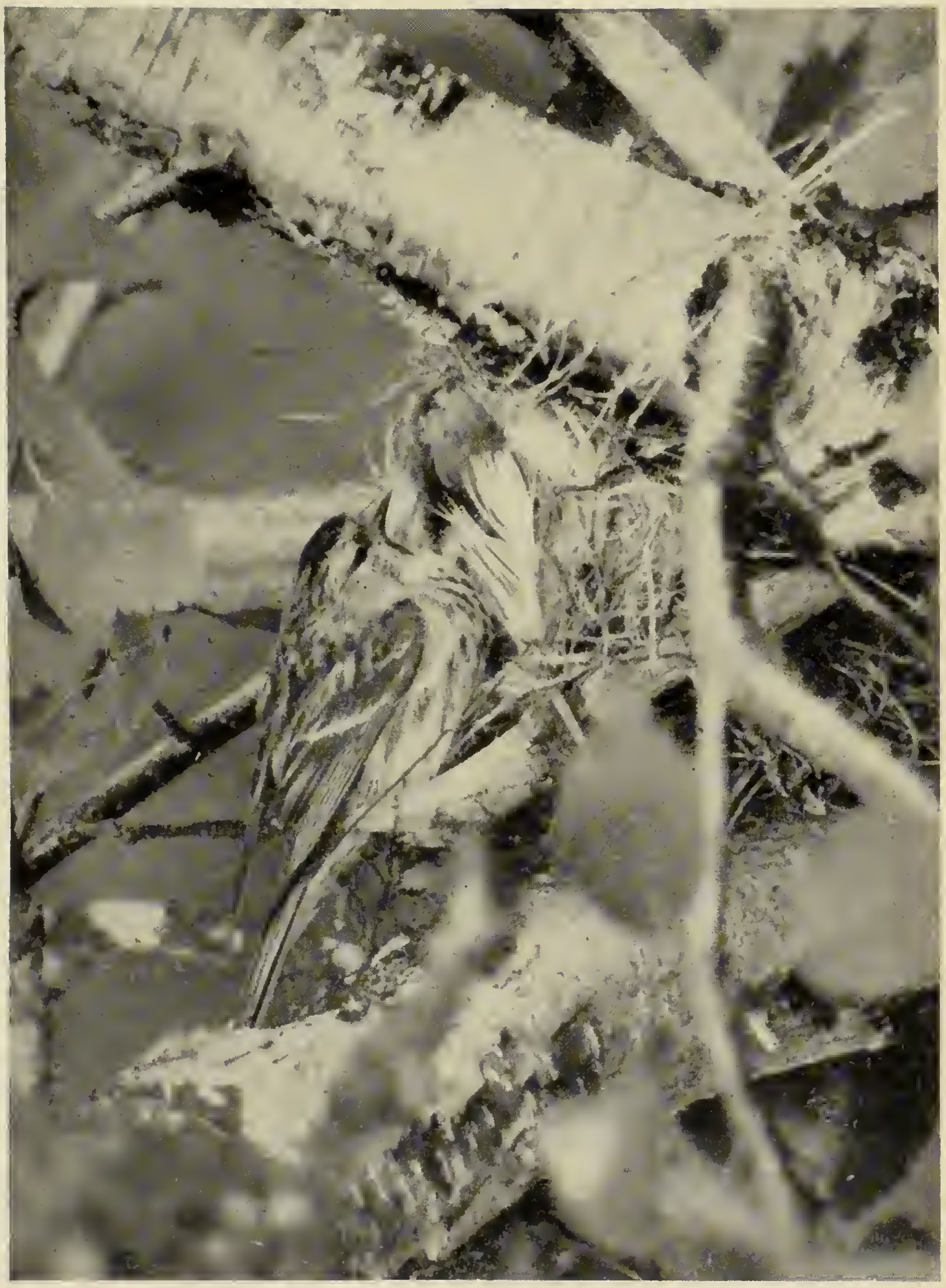
(Plates 22-25).

OUR photographs this month illustrate two birds characteristic of the high north of Europe, the Mealy Redpoll (*Carduelis f. flammea*) and Red-spotted Bluethroat (*Luscinia s. svecica*).

The Mealy Redpoll occurs as a not uncommon autumn and winter visitor in the eastern coastal areas of Great Britain and in the northern islands and more irregularly elsewhere. It is circumpolar in its summer range, breeding in high latitudes of both the Old and New Worlds. It is one of the characteristic small birds of the Scandinavian birch forests, where Mr. Southern's photograph was taken. As is well known, the Lesser Redpoll (*C. f. cabaret*) is the racial representative of the same species in the British Isles and the two forms differ little in habits, though the Mealy Redpoll is rather paler and greyer than our bird, with a whiter, less buffish, wing-bar, as well as averaging slightly larger. In its native haunts it is not confined to the forest belt, but ranges beyond and above the tree-limit to open fells, mosses and tundra country, where a meagre scrub of birch and willow suffice it for breeding-sites.

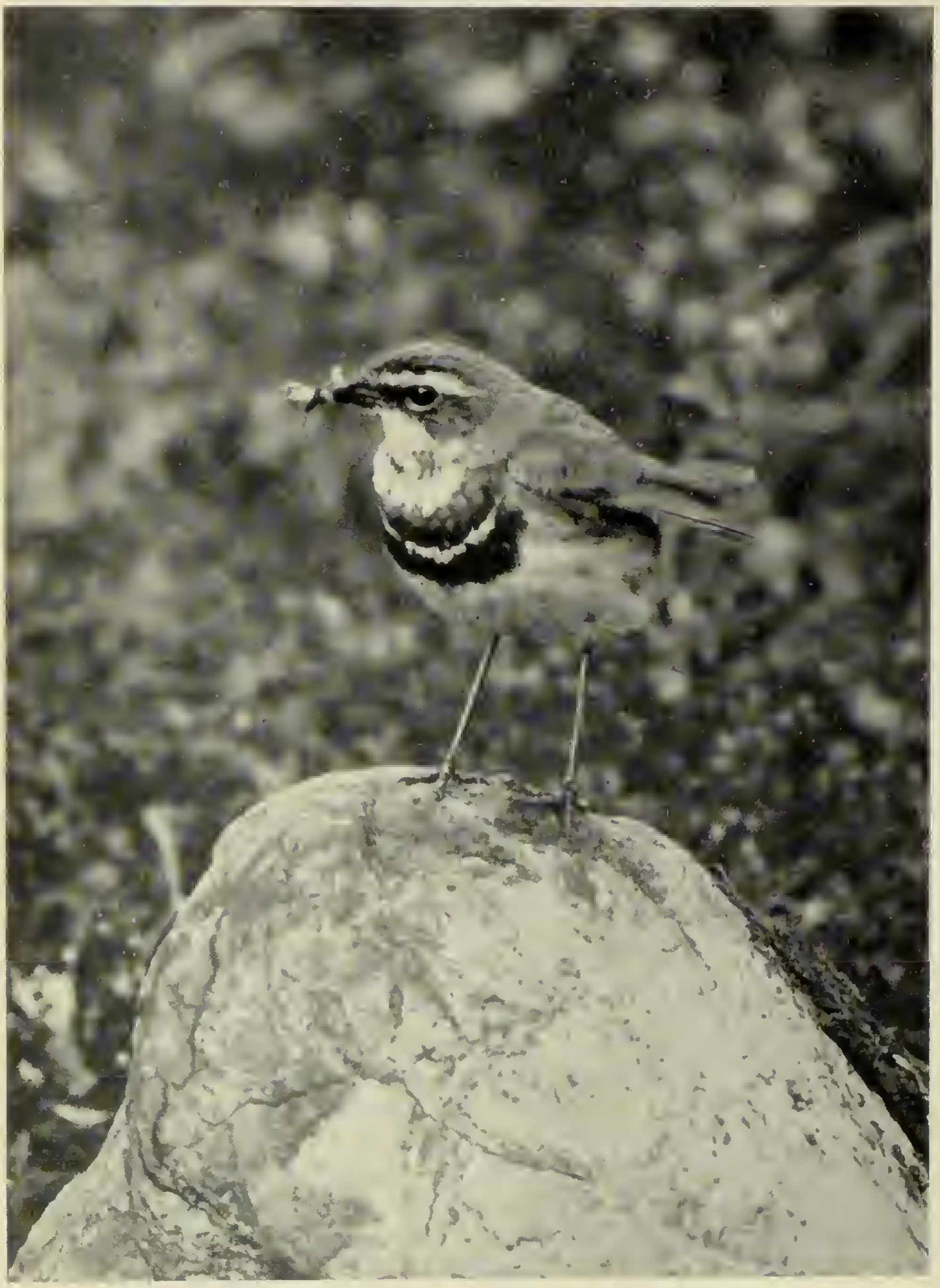
No less characteristic of the same regions is the Bluethroat, the principal song-bird of the high north. It is a bird of more or less open ground where birch and willow scrub provide it with some cover, and has a liking for swampy localities. Both in form and behaviour it proclaims relationship with the Robin, but the brilliant blue gorget bordered by black and chestnut-red with a chestnut-red spot in the centre is extremely handsome. Naturally this striking appearance loses something in a black and white photograph, but the general pattern is well shown in Mr. Chislett's photograph of the male. The female figured is a very soberly coloured specimen evidently not in mature plumage. The song is sweet, rich and strikingly varied and has some affinity with the Nightingale's.

In Britain this form of Bluethroat is an erratic but fairly regular visitor, more particularly in autumn, on parts of the east coast of England and on such Scottish islands as the Isle of May and Fair Island, but is rare or unknown elsewhere. In autumn the bright colours are much obscured, and as a migrant in this country, it is chiefly seen as a small dark skulking bird amongst coastal scrub or rootfields, reluctant to afford the observer more than brief glimpses as it is flushed from one bit of cover to another. Under such conditions the rufous base to the tail is the most ready means of recognition. B.W.T.



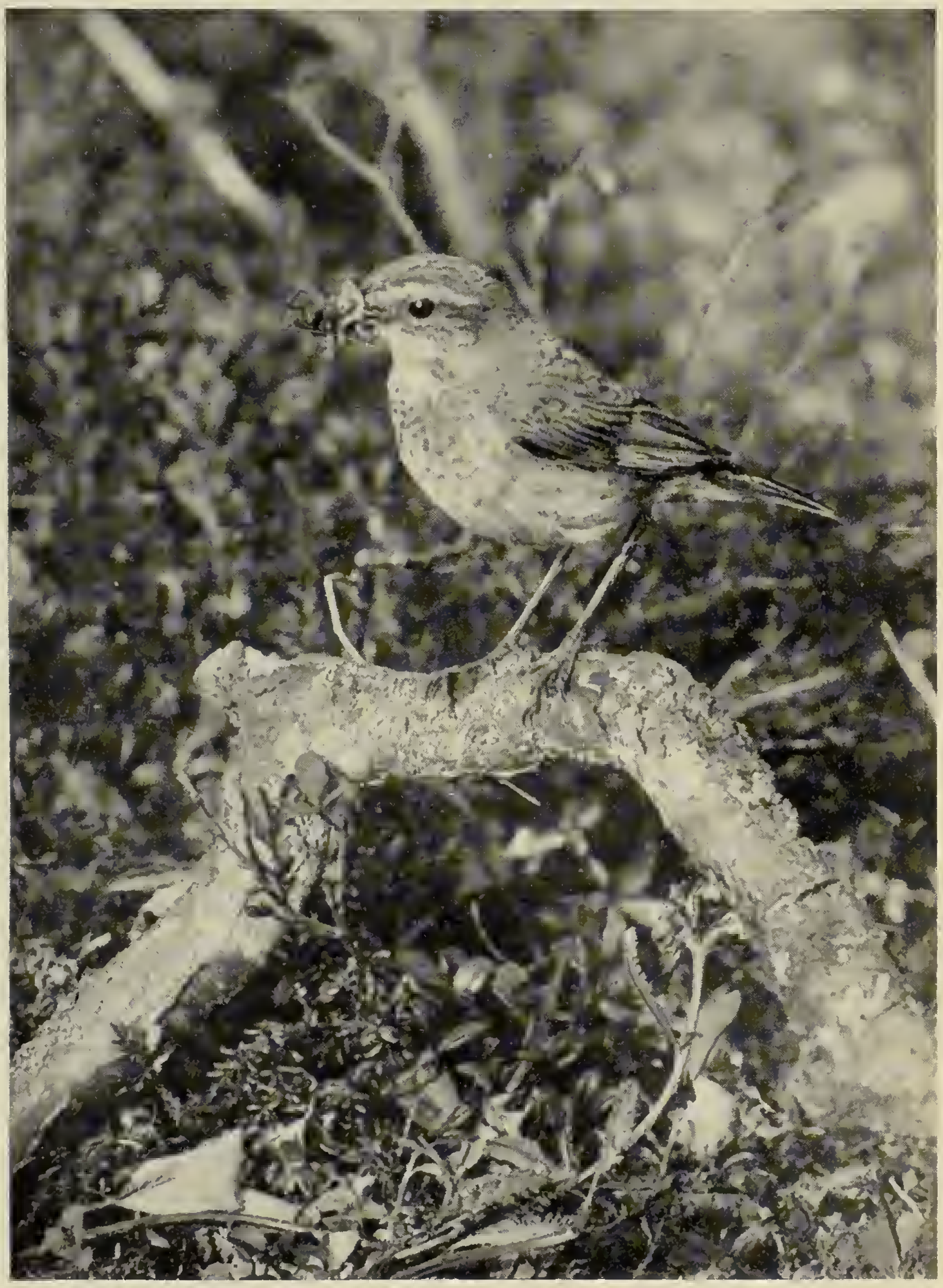
Mealy Redpoll (*Carduelis f. flammea*) at nest: Swedish Lapland.

(*Photographed by* H. N. Southern).



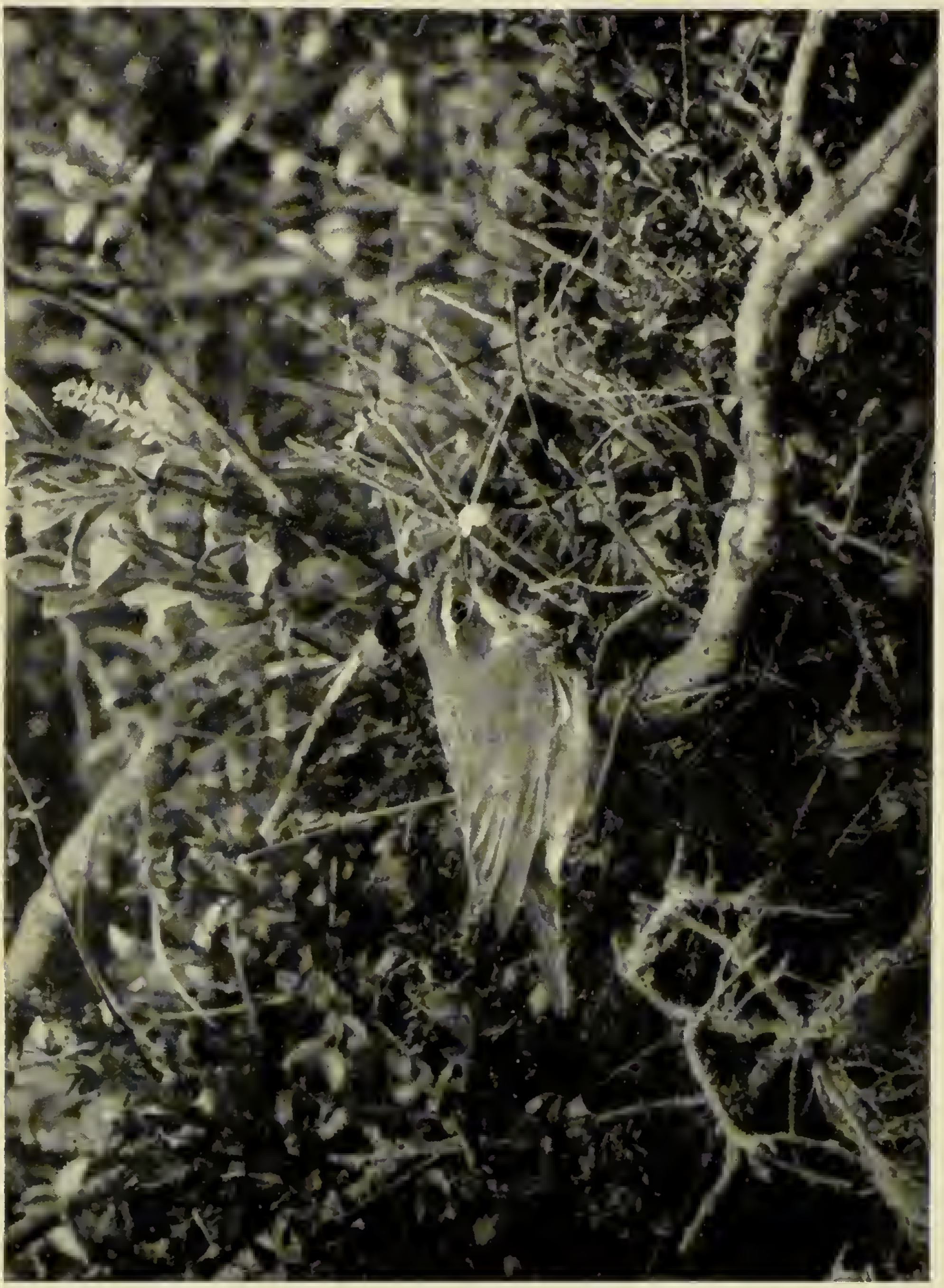
Male Red-spotted Bluethroat (*Luscinia s. svecica*) with food for young : Swedish Lapland.

(*Photographed by* R. Chislett).



Female Red-spotted Bluethroat (*Luscinia s. svecica*) with food for young : Swedish Lapland.

(*Photographed by* R. Chislett).



Male Red-spotted Bluethroat (*Luscinia s. svecica*) removing excrement from nest: Swedish Lapland.

(*Photographed by R. Chislett*).

NOTES.

LARGE GATHERING OF RAVENS DURING BREEDING SEASON.

On March 27th, 1946, I saw an unusually large gathering of Ravens (*Corvus c. corax*) near Cwmanne, in Carmarthenshire. About 40-50 birds were present on a hillside which contained several fir-plantations and a small, disused slate-quarry ; most of the birds appeared to be paired and there was continual croaking and display, with birds present in the air, on the ground and perching in the conifers. Sheep were grazing the hillside but no carcases were seen and the birds were present on several other occasions during the same week.

The Raven is a fairly common resident in the district, but such a large gathering during the normal breeding-season would seem to be unusual. No birds were found to be breeding in the immediate neighbourhood. Derek K. Bryson.

[On April 14th, 1933, I counted thirty-one Ravens together in the air in the Cumberland mountains and there were probably others on the ground. Although these were seen in the breeding-season at a date later than those in Wales there is no doubt that they had been attracted by dead sheep which had been buried by a heavy snowfall and were only then uncovered.—A.W.B.]

A WELSH RAVEN ROOST.

Mr. Bryson's description of a gathering of 40-50 Ravens (*Corvus c. corax*) on a hillside in Carmarthenshire, which the Editor has shown me, is interesting and this may well prove to be the assembly point for a roost. Whilst flocks of up to 40 Ravens are not uncommon in the autumn in Wales, it is unusual to see flocking in March, except for the purpose of roosting. It would be useful to know the time of day of Mr. Bryson's observation.

The following note refers to a Raven roost in Merionethshire, near the Dovey Estuary.

The site of this roost is a group of nearly mature Scots pine trees at an elevation of 500ft. above sea level. This clump of pines forms the highest point of a larger area of woodland, consisting of larch, adjoining the pine, and oak on the opposite face of the dingle, and on the lower slopes.

Ravens are common in the vicinity and it may be that a few pairs roosted on the site prior to 1937. I have no definite evidence about this point. However, from 1937 onwards, the roost has been in full use with 30-40 birds in evidence. The largest numbers using the roost were about 70 in 1939. During the early war years, the larch adjoining the roost and the oak wood on the opposite slope of the dingle, were felled. No appreciable effect on the numbers using the roost was evident although during 1947 and 1946 the numbers have fallen off to from 20 to 30 birds.

There are several curious facts about this roost. It is used all the year round, although the numbers fluctuate. A peak is reached in September, with rather fewer birds using the roost throughout the winter months. During the winter most of the Ravens arrive in pairs, but there is no falling off in numbers during the nesting season (February to April). From May to August the numbers are smallest, with a minimum in June. The Ravens start to arrive about three-quarters of an hour before dusk, with odd birds even earlier. In the late autumn there are often odd birds "exercising" above the roost all day, especially in fine weather. But from December onwards none are in evidence during the day.

In 1937 there was a collecting point on the tops of the oak trees on the side of the hill facing the main roost. Since this wood has been felled, the Ravens have used the exact site on the bare hillside below the point where they used to collect on the tops of the growing oaks. The curious point is that the removal of the timber has revealed a very sharp ridge on the hillside, a vantage point which the Ravens might have been expected to use after the tops of the oak trees were no longer available. However, this is not so. The focal point for collecting is a patch of heather, on somewhat rocky ground, quite low down the side of the steep hill and not very far from a large residential house.

There is no evident correlation between the numbers using the roost and the number of breeding birds known over a very wide area of adjoining country ; although I am informed that few of the nearest nesting sites were used in 1947 and this may be linked with the smaller numbers using the roost now. However, I have insufficient evidence about this point. There is no nest on the site of the roost.

There is a very large roost of Carrion Crows (*Corvus c. corone*) and Jackdaws (*Corvus monedula spermologus*) in the oak wood on the lower slopes of this hill and a few of the Carrion Crows overlap into the trees where the Ravens roost.

I have only heard of one other Raven roost in Wales, near Lake Vyrnwy, but I believe that it has been disused for many years.

W. A. CADMAN.

MAGPIE KILLING WATER-RAIL.

ON DECEMBER 8th, 1946, I was walking across a stubble-field near Deal, Kent, when I saw a bird flying rather feebly about 15 feet above the ground against a fairly strong S.W. wind. Suddenly a Magpie (*Pica p. pica*) flew up from a post, attacked the bird and knocked it to the ground behind a hedge. I hurried up, pushed through the light hawthorn hedge and found the Magpie still battering at the skull of its victim, which was quite dead and proved to be a Water-Rail (*Rallus a. aquaticus*). This district is not suitable for breeding of Water-Rails and they only occur as visitors in winter. It seems probable that the bird was a migrant just landing when I first saw it.

ROWLAND B. CODD.

CONTINENTAL JAY IN YORKSHIRE.

During the very severe weather of early March, 1947, one of the writers (W.G.B.) observed three jays feeding together in the stack-yard of a farm at Pallathorpe, near Bolton Percy, Yorkshire. One of these birds was collected on March 17th and sent to the Yorkshire Museum, where the grey appearance of the mantle and almost entire absence of deep vinous tinge at once attracted attention. It was compared with our series of the Continental Jay (*Garrulus g. glandarius*) and British Jay (*Garrulus glandarius rufitergum*), and was immediately referred to the typical race.

The bird was a female by dissection, with ovaries developing fairly well; the skin, which represents the first occurrence of the Continental subspecies in Yorkshire, is now in the Yorkshire Museum study collection. In addition to the greyer mantle the specimen agrees well with other Continental material in having much less of the vinous tinge on the nape, sides of neck, sides of breast and flanks, and in having the underparts suffused with grey and the crest a clearer white. Reginald Wagstaffe, Kenneth Williamson and W. G. Bramley.

UNUSUAL ROOSTING AND NESTING SITE OF STARLING.

On April 1st, 1945, I noticed that two Starlings (*Sturnus v. vulgaris*) were going out to roost in an old wreck on the Marden Rocks about a mile north of Alnmouth, Northumberland. They entered a hole near the top which was evidently their regular roosting place as I saw them go to the same hole on several subsequent occasions. The wreck is about 250 yards below high water mark and is dry at low tide.

On May 26th two birds were making regular trips to the wreck and were obviously feeding young. Later I found the nest in a broken bollard attached to the now vertical deck and just above spring tide level. Late in June I extracted the nest and found it empty, the young having apparently been safely reared.

On September 26th, I saw a bird go out to the wreck to roost and three went out on October 13th. H. Tully.

DISPLAY OF YELLOW BUNTING.

The display of a pair of Yellow Buntings (*Emberiza c. citrinella*) here described occurred on a road at Iwerne Minster, Dorset, on May 20th, 1947. Some quivering of the wings appeared to be taking place as I approached the birds, but the distinctive posture taken up by both of them involved the elevation of the tail, stretching upwards of the neck, and the raising and expanding of the wings. The latter were held high, nearly fully extended, but in a horizontal plane. The tail was not fanned. I could not be sure if the crest was raised, but if it was it was kept raised. Both birds held this posture while the male hopped around the female. He then hopped on to her back and uttered a suppressed rendering of the last few notes of the song, which I figured as " ze-ze-ze-zee-ee."

Coition did not appear to take place, and at this time neither bird crouched. The male hopped off at once and then assumed the posture described for the female by Mr. Witherby in *The Handbook*, squatting motionless on its tail with the bill pointing straight upwards. The effect of this attitude was to show off the bright yellow chin and throat to the fullest advantage. The female resumed the posture previously described and hopped round the male. The display was terminated by the passing of a car. I do not know how long the procedure lasted, but I should think it was less than a minute. P. F. Yeo.

[Mr. Yeo's observation provides a somewhat amplified, and at the same time more consecutive, account of display behaviour than was previously available, though all the essential elements in it have been described before. The pointing upwards of the bill is a characteristic feature, which has been recorded for both sexes (*cf.* the citation from Eliot Howard in *The Handbook*, Vol. i, p. 114) and not, as our correspondent's note might suggest, for the female only.—Eds.]

G. T. Rope has recorded the male Yellow Bunting (*Emberiza c. citrinella*) displaying on the ground with wings raised high above the back. On May 24th, 1947, in a field near Chicklade, Wiltshire, I watched for a few minutes an elaboration of this display.

I heard the *twick* note twice from the male, which, with the female, flew to the ground (plough) a few feet from me. The female began to feed, or search for food, but the male, with a half running gait, approached her with wings held high above the back, yellow breast pushed well forward and head held high. The tail was fanned and sweeping the ground. The chestnut of the rump was most noticeable. The female flew to the fence, and the male then ran round in a circle, silently, in a crouching position with head lowered, wings half open and with the fanned tail and wing tips sweeping the ground. The female returned to the ground and the first phase of the display began again. The birds were then disturbed and flew away. E. M. Cawkell.

SEXUAL BEHAVIOUR AND CALL OF THE HOUSE-SPARROW.

Noticing in *The Handbook* that the habit of the male House-Sparrow (*Passer d. domesticus*) of pecking at the female's cloaca has only been recorded once, I send in the following observations.

On March 16th, 1944, at Eichstatt, Germany, seven males were pecking at the cloaca of a single female. They only pecked at the disengaged side, so that the female kept spinning round. Again on February 13th, 1947, I saw two males pecking alternately at a female's cloaca. The males were on either side of her and kept her spinning for *ca.* 20 seconds, until one of the males flew off.

As it flew off, it passed about four feet away from me, and I could just hear it using a call which has not been described in *The Handbook*. It was a very quiet "tch" note, not audible more than ten feet away. The sound can be fairly well imitated by drawing the tip of the tongue away gently but rapidly from the roof of the mouth. The note was repeated about two or three times a second in flight. P. J. CONDER.

MEADOW-PIPITS FREQUENTING FARM BUILDINGS IN WINTER.

For the last six weeks, six Meadow-Pipits (*Anthus pratensis*) have lived on a farm near Middlewich, Cheshire. They arrived on January 15th, 1947, and are still here at the time of writing, March 9th.

They are exceptionally tame and follow one about like Robins. They sleep in the shippen on the beams, huddled on the flat, not perched on narrow rods. They even wander about the cows' beds searching for food in the bedding, and take not the least notice of the cows.

Four of them have much lighter plumage on their breasts than the other two, although now all the birds are very frayed and dusty with living mostly indoors. They even drink from the cows' water-bowl.

When the weather is not too bad, they fly round the yard loudly calling their "tisp" call, not the faint "tsiip."

The Handbook describes the food as "insects, seeds and earthworms." To these I can add bread, cabbage leaves, and suet—the latter was much relished. R. C. R. ALLEN.

A WINTER ROOST OF GREY WAGTAIL.

ACCORDING to Naumann, quoted in *The Handbook of British Birds*, the Grey Wagtail (*Motacilla c. cinerea*) roosts in trees or hedges near the water. During the winters of 1942 and 1943 I was able to watch a roost of this species in a single, small tree below the windows of my office in the British Legation, Beirut, in the Lebanon. This roost was three miles from the nearest stream and half a mile from the sea-shore, where I never, in any case, saw the birds. The wagtails, some 20 to 25 in number, flocked each evening with a large number of sparrows just as the light was going, but left the row of trees used by these birds and flew singly into this isolated tree. E. M. CAWKELL.

COURTSHIP FEEDING OF GREAT TIT.

ON April 29th, 1947, while watching a nest-box, with a tit-bell from an enclosed woodshed, I witnessed the following incident.

Two Great Tits (*Parus major newtoni*) alighted in the tree and one fed for a few seconds at the bell, before flying out of my field of vision. The second tit then flew to another (and nearer) branch, where it crouched with bill wide open and drooped wings vibrated rapidly. The first tit reappeared beside it and thrust its bill several times into the other's. It then made as if to fly off, but the repeated posturing of the other caused it to repeat the performance. The presumed hen then fed at the bell.

Being in the enclosed shed, I was unable to hear if any notes were uttered by either tit. B. H. ALABASTER.

COURTSHIP FEEDING OF COAL-TIT.

ON April 28th, 1943, I watched a pair of Coal-Tits (*Parus ater britannicus*) which were close together in the branches of a willow tree at Alfrick, Worcestershire. One bird shivered its wings and uttered a squeaky call " zit-zit-zit-eet-it"; its mate called rather similarly, then flew up to the first and fed it. JOHN TOOBY.

COURTSHIP FEEDING OF MARSH-TIT.

WITH reference to the note on the courtship feeding of the Marsh-Tit (*Parus palustris dresseri*) (*antea*, p. 51), I observed, on May 3rd, 1946, in North Devon, courtship feeding of a pair of Marsh-Tits. Both birds were engaged in nest building, the hen presumably playing the predominant part. On one occasion, when both returned to the nesting-site together, the hen immediately entered the nesting-hole whilst the cock started to gather larvæ in the branches above. The hen later flew out of the hole straight to the cock, and quivered her wings. The cock immediately fed her with the larvæ he had collected. They then both flew off together. ANGELA PRITCHARD.

WILLOW-WARBLER FEEDING ON ANTS.

ANTS do not appear to be a common food for the genus *Phylloscopus*, It may therefore be of interest that I saw a Willow-Warbler (*Phylloscopus t. trochilus*) taking several winged specimens of *Myrmica ruginodis* out of a swarm on August 27th, 1945, near Bromsgrove, Worcs. F. FINCHER.

NORTHERN WILLOW-WARBLERS IN KENT.

THE Northern Willow-Warbler (*Phylloscopus trochilus acredula*) has been noted in Kent since 1888, (Ticehurst, *A History of the Birds of Kent*, 1909, p. 50). Since then various observers have from time to time noted its presence in the Dungeness area, amongst these is Dr. Norman Joy, while Dr. Norman Ticehurst saw two on May 3rd, 1917, in some willows bordering a ditch in Romney Marsh.

Dr. Joy has kindly sent me two specimens killed at the Dungeness Lighthouse on April 8th and 27th, 1937. I am now able to record this race from inland in Kent, and have identified the following:—

Male and female, April 21st, 1937, Shoreham.
Male, April, 20th, 1941, Sevenoaks.
Female, April 23rd, 1941, Sevenoaks.
Male, April 24th 1941, Sevenoaks.
Male, April 19th, 1947, Sevenoaks.

Col. Meinertzhagen has kindly confirmed my determination of the above specimens. JAMES M. HARRISON.

BLACKCAP WINTERING IN LINCOLNSHIRE.

On February 22nd, 1947, during the very snowy weather, I was surprised to see a cock Blackcap (*Sylvia a. atricapilla*) come to our bird table. It was constantly in close proximity to the table for two or three days and became very tame. My wife succeeded in enticing it to perch within two feet of her, while I obtained two photographs at 3½ feet. I believe it would have eventually settled on my wife's hand, but on February 26th, five Kestrels (*Falco t. tinnunculus*) arrived, and for two days played havoc among the flocks of small birds. The Blackcap vanished, and we thought it had fallen a victim. However, it returned again on March 5th, but its visits became irregular and it seemed more timid. I believe it was the same bird. During the summer we have many Blackcaps in the conifer plantations which surround this isolated house at Denton, near Grantham, but this is the first time I have observed one to remain for the winter. P. P. L. Stevenson.

[Although winter Blackcaps are not in general sufficiently unusual to be specially noted in *British Birds*, this bird's apparent survival of the very severe winter in Eastern England seems worthy of record.—Eds.]

NEST DECORATING BY COCK WHITETHROAT.

The Handbook states that the nest of the Whitethroat (*Sylvia c. communis*) is decorated by the hen with bits of down or wool, but makes no mention of the decoration of " cock's nests " by the male in the absence of a hen.

On May 5th, 1946, in North Devon, I observed a Whitethroat fly into a bush carrying a ball of white fluff in its bill. It then flew to a hedge near by and commenced to sing, and it was identified as a cock bird. On examining the nest, situated in the bramble bush, I found it to be complete except for a lining, the rim being entirely decorated with white down. I kept the site and bird under observation for two weeks, the cock bird always remaining near the nest and occasionally visiting it. A hen Whitethroat was never seen. Eventually the site and nest were abandoned and all the nest decorations disappeared. Angela Pritchard.

" INJURY-FEIGNING " OF BLACKBIRD.

On May 18th, 1947, at Upminster, Essex, I picked up a young Blackbird (*Turdus m. merula*) which had wandered on to a road, away from others of the same brood.

On hearing the cry of the young bird, the male Blackbird flew right up to me, and began to flutter along the ground, with one wing dangling.

On my placing the young bird in a bush, the male flew into a neighbouring tree and again dangled its wing in front of me. During the performance both parents kept up constant cries of alarm.

Later that day when one young was caught by a cat, both parents flew at, and attacked the cat with such ferocity, as to force it to seek shelter under a group of bushes. M. J. ARDLEY.

SUB-SONG-LIKE NOTE OF GREAT SPOTTED WOODPECKER.

ON JANUARY 2nd, 1947, near Ludgate Plain in Epping Forest, Essex, I heard a male Great Spotted Woodpecker (*Dryobates major anglicus*) emit a peculiar sound suggesting a sub-song which is not recorded in *The Handbook.* A whispering, high pitched noise which followed no particular pattern in rhythm would be an ample description of it. It was heard several times from only ten feet before the bird flew and there can be no doubt that the noise came from the bird, as there were no other birds in the vicinity.

ALWYNE C. WHEELER.

SNOWY OWL IN BRECONSHIRE.

ON JANUARY 7th, 1947, I saw a Snowy Owl (*Nyctea scandiaca*) near Bwlch, Breconshire. I was out after duck with a friend about 4.40 p.m. (G.M.T.) when it was getting misty. As we were crossing a flat field a huge white owl flew about a hundred yards ahead of us right across the field from right to left and about 8-10 feet from the ground. I am certain that the very large size was not an illusion due to the light and foggy air, as duck and White-fronted Geese were not distorted and I am quite satisfied that it was a Snowy Owl. I am thoroughly familiar with Barn and other owls. H. B. ELTON.

LITTLE OWL BREEDING IN ANGLESEY.

I NOTICE in *The Handbook* that, at the time of publication, breeding of the Little Owl (*Athene noctua vidalii*) had not been proved in Anglesey. I was on the Bodorgan Estate during the last week of June, 1946, and on the evening of the 25th I was attracted by call notes which I did not recognize at first. By careful stalking I was able to get within a yard of the source of the call—a wheezing note. By this time I had recognized the call as that of a young Little Owl, and I was in time to see the young bird before it saw me and disappeared into a hole in a wall. I think that I caught a short glimpse of another young bird a few yards away, but it disappeared too quickly for me to be certain.

There were numerous holes in the wall, leading to rabbit burrows. The time was about 7.0 to 7.30 (B.S.T.) and I had not time to wait for the young owls, or their parents, to show themselves again.

There is no possibility of my having been mistaken, as I saw the one young owl in quite good light, at three or four feet range. I am quite familiar with the species in my own neighbourhood, where I have taken photographs from a hide of a young bird of similar age—able to run about, but unable to fly. RONALD THOMPSON.

KESTREL ROBBING LITTLE OWL.

ON MARCH 12th, 1947, Mrs. Schicker informed me that while threshing grain from a stack at Madingley, Cambridge, on that day the farmer and helpers had noticed a Little Owl (*Athene noctua vidalii*) perched on the top of the stack. Soon a mouse ran out at their feet and at once the owl swooped down on it and carried it away, but returned within a few minutes. As it was carrying away a second mouse, a Kestrel (*Falco t. tinnunculus*) perched on a high tree about 50 yards away, swooped down, buffeted the owl and carried off the mouse. At intervals throughout the day the owl caught mice and took them away, and four times the Kestrel was seen to assault it and relieve it of its mouse.

One of the farm hands followed the owl and saw it deposit a mouse in a cavity in an elm close by. He climbed up and found several dead mice in the hole. Next day, when I visited the farmyard, there was no threshing, and when I climbed up to the hole in the elm only 4 mice and a bit remained there. Is this storing usual or the outcome of the preceding seven weeks of very hard weather?

W. M. MOREAU.

[From evidence obtained in the Little Owl Food enquiry, 1936-7, (*antea*, Vol. xxi, pp. 162-187, 205-229, 249-264) the late Miss A. Hibbert-Ware reached the conclusion that the Little Owl does not normally store food beyond its immediate needs, though the case may be recalled of the formidable "cache" of Storm-Petrel (*Hydrobates pelagicus*) remains formed by a pair of Little Owls on Skokholm referred to in her report.—EDS.]

KESTREL EATING DEAD BIRD.

SINCE the eating of carrion by the Kestrel (*Falco t. tinnunculus*) is mentioned by *The Handbook* as an unusual habit, the following observation may be worth recording. During the severe weather in the early part of 1947, many gulls died, frozen into the ice on Barn Elms Reservoirs, London. On February 8th I watched a female Kestrel investigate one such dead gull, and apparently finding it frozen too hard flew on a few yards to another. The Kestrel then perched on the carcase of the gull (unidentifiable from the bank), and after plucking a quantity of body plumage away tore at the flesh, tugging energetically. Similar behaviour at the same place had been witnessed previously by B. A. Richards and others.

R. W. HAYMAN.

BLUE GEESE IN HOLLAND TRACED FROM SWEDEN.

I HAVE read with interest the article in *British Birds* about Blue Geese (*Anser cærulescens*) in Ireland (*antea*, pp. 44-47). On page 47 it is stated that "the possibility of escapes from Continental sources may be fairly excluded." I do not think this is quite correct. Only a few days ago Mr. G. Scholten, a biological student at Utrecht, informed me that on February 20th and 21st, 1947, he had seen a flock of 18 strange geese, which from his description I at once recognised as Blue Geese. He had seen them in the Merwede

Kanaal, near Maarssen, which has open water during the whole winter, owing to a factory in the neighbourhood. In addition Mr. Scholten had found one of these geese dead and bearing a ring stating that it had been marked by Bengt Berg in Sweden. Consequently I think it is very likely that the birds in Ireland belonged to the Bengt Berg colony also. Mr. Scholten has made a skin of his specimen, so that the identity can be proved. G. J. VAN OORDT.

[We are much indebted to Prof. van Oordt for this important piece of information, which only seems to emphasize the extreme caution necessary in assuming unusual waterfowl to be wild. It may seem less likely that stray geese from Sweden should reach Ireland than Holland, but the possibility clearly cannot be excluded and these occurrences in two consecutive winters are, to say the least, suggestive.—EDS.]

THE EFFECT OF SEVERE WEATHER ON WIGEON.

DURING the extremely hard weather of January and February, 1947, we were able to make some interesting observations on its effect upon the large numbers of Wigeon (*Anas penelope*) present on some North Kent saltings.

The normal habit of these duck is to spend the daytime out on the saltings in mixed flocks, ducks with drakes. During this weather they were all forced to spend the nights out there as well. At the end of January it became obvious to us that the ducks were suffering from the cold far more than the drakes. This resulted in a segregation of the sexes, because the drakes were able to spend the day out on the more exposed parts of the saltings as usual, whereas the ducks were forced to come on to the more sheltered parts of the saltings and were to be found in small parties under the sea-wall, and even in the snow-covered fields just beyond.

From birds that were shot, we were able to confirm that the ducks were relatively considerably thinner and more wasted than the drakes. Duck Wigeon are normally about six ounces lighter than the drakes, and smaller in size. They have therefore a relatively larger surface area than the drakes from which to lose heat, so it is not surprising that they suffered more than the drakes, which are in any case more hardy.

These notes are of interest when it is remembered that some species of duck tend to split up their sexes as a normal happening in winter, and it may be that this differing effect of hard weather is of some significance in this respect. Wigeon, however, appear to spend the winter in mixed flocks. Occasionally it seems that they migrate separately, for Mr. A. B. L. Peake tells us that he saw what appeared to be a large flock of newly arrived migrant Wigeon on the Wash at Wolferton in early October. These birds were all old drakes coming out of eclipse plumage, all with their prominent white shoulders.

JEFFERY HARRISON AND ALASTAIR MCLEAN.

FERRUGINOUS DUCK IN NORTHAMPTONSHIRE, SURREY AND SUSSEX.

On January 5th, 1947, the recorder and a companion, Mr. F. Adams, observed a Ferruginous Duck (*Aythya n. nyroca*) on a pool on Northampton Sewage Farm. It was in company with a small flock of Shovelers (*Spatula clypeata*) and was decidedly smaller than these. The rich chestnut breast, flanks and head were very prominent, as also were the white lower breast and belly. The white under tail-coverts could also be seen, but better so when the bird was in flight. The back was duller than the breast and flanks, being of a dark-brown colour, which looked very dull as compared with the rich chestnut of the parts previously mentioned. The iris was lightish, but could not be accurately described as white.

As I was observing with a telescope I could not pick the bird out when it took to flight with the other ducks, but Mr. Adams, who had binoculars, saw the very prominent white mark on the wing, as well as the silky white under-parts. R. E. Burton.

I think it is worth recording that I identified an adult male Ferruginous Duck (*Aythya n. nyroca*) on Domewood Lake, Surrey, during the afternoon of December 8th, 1946, though the bird may have been an escape. There were present at the same time, for comparison, a female Scaup (*Aythya m. marila*), several Tufted Duck (*Aythya fuligula*) and a number of Common Pochard (*Aythya ferina*). I was struck at first by the richer browns of its plumage than those of the above species when examined through an x 30 telescope, after which the white under tail-coverts caught my eye. On several occasions it half rose out of the water to flap its wings when the broad white band of the secondaries could be easily seen as also the smaller area (compared with female Tufted Duck) of pure white on the central breast. It did not keep apart from the other ducks. Some time later I believe I saw a second bird of the same species which I did not notice before. But, by then, visibility was very bad, as it had begun to pour with rain and I was unable to make sure of the identification. I. J. Ferguson Lees.

Two adult male Ferruginous Ducks (*Aythya n. nyroca*) frequented the Rye Harbour—Jury's Gap area, Sussex, from November 17th, 1946 until February 22nd, 1947. The birds were seen on various occasions in this period by J. Ashbee, J. C. Wickens and the writer, and had been satisfactorily identified, both at rest and in flight, when one was shot on February 22nd and examined in the flesh by Mr. Ashbee.

Any Ferruginous Duck may, of course, be an "escape."

E. M. Cawkell.

VELVET SCOTERS IN STAFFORDSHIRE.

On January 2nd, 1947, I visited Belvide Reservoir, near Gailey, Staffordshire, and found that two Velvet Scoters (*Melanitta f.*

fusca) were present. The day was one of bright sunshine and very cold frost.

The birds were about forty yards distant and the white wing patch was clearly seen, but they took wing as soon as I put the glasses (6 x 30) on them so I did not see the sides of the head. However, I had an excellent view of them in full sunlight as they flew off, the white speculum being seen to great advantage, and even in this light, the birds appeared very dark and were almost certainly both males. They kept well away from the two thousand or so other ducks present. D. R. MIRAMS.

[It may be noted that a Velvet Scoter was recorded at Gailey from November 18th to 25th, 1934 (*antea*, Vol. xxxviii, p. 346).—EDS.]

NOTE ON PLUMAGE OF DRAKE SMEW.

I HAVE recently received an adult drake Smew (*Mergus albellus*) shot on the Earith-Sutton Washes in Cambridgeshire by Mr. V. W. Bulstrode, on January 11th, 1947. This bird is in full adult plumage and is of interest because it has a beautiful pink suffusion forming a crescent over the upper part of its breast. This pink colour is to a certain extent prolonged up the sides of the neck, more especially on the left side. There is no sign of any further pink elsewhere on the bird.

This colour appears to be very similar to that which is found in the adult drake Merganser, but so far as I am aware, has never been observed in a drake Smew. I do not know whether this is merely a variety, or whether it is a sign of a very old bird. Certainly on skinning the bird, it appeared to be a real old one, judging from the state of the bones, and the adherence of the pectoral muscles to the overlying skin. JEFFERY HARRISON.

SOUTHERN CORMORANTS IN KENT AND SUSSEX.

THE Southern Cormorant (*Phalacrocorax carbo sinensis*) has been identified from Christchurch, Hants., a single specimen in the British Museum bearing the date February, 1873. Birds ringed as nestlings in Holland, Germany and Belgium have been recovered in Suffolk, December, 1935 ; Kent, February, 1935 ; Sussex, 1936 and Dorset, January, 1936.

Commenting upon these records in *The Handbook of British Birds* (Vol. iv, p. 9), the late H. F. Witherby expresses the view that the bird probably occurs not infrequently. In order to extend our knowledge on this matter a small number of Cormorants have been collected, with the result that further specimens of this race have been secured without much difficulty. A list of these is attached :—

Male, immature, February 12th, 1938, Rye Harbour, Sussex.

Female, immature, September 11th, 1946, Medway estuary, Kent.

Two females, one immature, one adult, September 22nd, 1946, Medway estuary, Kent ; for these two specimens I am indebted to Mr. Alastair McLean, who informed me that at the time they were secured there were about thirty Cormorants in a relatively small area of the estuary.

Female, immature, September 29th, 1946, Pegwell Bay, Kent.

These five birds all show markedly green reflections, even in the full juveniles. The adult bird shows some white flecking down either side of the neck as also on both flanks.

It is clear that this race is, as indeed was foretold by the late Mr. H. F. Witherby, not infrequently to be met with in the south-east coastal areas. JAMES M. HARRISON.

NOTES ON NESTING-BEHAVIOUR OF DOVES.

THE remarks in *The Handbook* on the behaviour of doves, although dealing fully with the pairing display of the four species, do not mention the "calling to nest" which is common to them all, and probably to the Columbidæ as a whole.

The male appears to take the initiative in selecting the nest-site, and having done so, with head down and in a somewhat crouching posture with the hinder parts and tail more or less raised, utters a characteristic note, which may be (at least to human ears) similar to the usual "cooing" as in the Domestic Collared Dove, or utterly different as in the Wood-Pigeon (*Columba palumbus*). This call is repeated at frequent intervals and is interspersed with head-nodding and a sharp spasmodic twitching of the closed wings. In the case of the Wood-Pigeon (*Columba palumbus*) and Stock-Dove (*Columba œnas*) this may continue for an hour, or more whilst the female perches apparently indifferent in the top of the tree. When the female joins the male at the nest-site the birds fall into a state of apparently intense emotion, twitching their wings and caressing each other's heads with their bills, the female usually doing most of the caressing, standing over the male and running her bill through his head feathers as he calls. This behaviour has no direct connection with coition or the pairing ceremonial, and that it is of deeper psychological significance from a bond-forming point of view is suggested by the fact that I have seen male Domestic Pigeons and a captive male Turtle-Dove (*Streptopelia t. turtur*) indulge in the complete coitional ceremony with unmated females that they would not allow to approach the nest-site.

This behaviour seems to reach its peak at and shortly after the female's acceptance of the nest-site, but calling to and caressing on the nest-site usually continues to some extent until incubation commences, being interrupted in the Stock-Dove (*Columba œnas*) and Rock-Dove (*Columba livia*) by the "driving" period during which the male pursues the female unceasingly, pecking at her head and giving her no rest except at the nest-site or when he is snatching a hurried meal.

Although so far as I have observed with wild species both at large and in captivity the male takes the initiative in selecting the site and "calling to nest," the fact that in the Domestic Pigeon and

Domestic Collared Dove, the females will often adopt this rôle if unpaired, but eager to pair and nest, suggests that the male usually being more forward physically or more eager to nest may account for his taking the lead. DEREK GOODWIN.

FOOD-WASHING HABIT OF WADERS.

WITH reference to the food-washing habits of the Green Sandpiper (*Tringa ochropus*) (*antea*, Vol. xxxix, pp. 378) the following may be of interest.

On January 18th, 1947, I observed a single Green Sandpiper feeding in a small ditch at Cuckmere Haven, Sussex, at a distance of 20 yards. After pulling a large worm from among some dead reeds near the side of the ditch, the bird carried it to some clear water. Then, holding the worm at the tip of its bill, it proceeded to shake it rapidly in the water, making a great deal of fuss. The bird finally swallowed the worm after washing it for about two minutes.

D. H. BROWN.

WADERS IN NOTTINGHAMSHIRE IN WINTER.

ON DECEMBER 26th, 1946, R. Stewart, R. J. Raines and myself had excellent views at close range of a Bar-tailed Godwit (*Limosa l. lapponica*) on Nottingham Sewage Farm, and the bird was still present ten days later. I cannot trace any previous winter record for the county.

On the first mentioned date there was also in the same area a compact flock of 30 Ruff (*Philomachus pugnax*), and it may be stated that a flock of size approaching this is now considered of regular occurrence here at this season annually.

On December 29th, 1946, two junior observers and myself had good views of a Spotted Redshank (*Tringa erythropus*), and heard the distinctive call, over the same sewage beds, and R. J. Raines informs me that he also heard the call on the day previous. Here also, there seems to be no previous winter record. J. STATON.

SPOTTED REDSHANK AND WHIMBREL IN CO. CORK IN WINTER.

ON DECEMBER 2nd, 1946, I saw a Spotted Redshank (*Tringa erythropus*) feeding on a mud bank on the edge of the receding tide in an estuary on the north side of Queenstown Island, Co. Cork, in company with a number of those of the common species. Its plumage in general was similar to theirs but whiter underparts and the long slender bill were most noticeable. When it took wing the absence of white on secondaries confirmed identification. Two days later the bird was again in the same locality.

Throughout December, 1946, and up to January 6th, 1947, when I last heard one, Whimbrel (*Numenius ph. phæopus*) were frequenting the estuary north of Queenstown Island, Co. Cork. On one occasion I identified three birds but usually it was the call which proclaimed their presence. I think it is most exceptional for Whimbrel to be found in Ireland in January. C. F. SCROOPE.

GREAT SKUA OFF ISLE OF MAY IN SPRING.

As spring records of the Great Skua (*Stercorarius s. skua*) in British waters away from the breeding-grounds are uncommon, it seems desirable to record that on the afternoon of April 24th, 1947, we obtained a fine view of one of these birds off the east shore of the Isle of May. It was heading north with drifting, aimless flight ; and it is the first spring record of this bird for the island.

P. J. SELLAR AND J. C. WYKES.

BLACK REDSTARTS IN ENGLAND IN SUMMER.—Mr. R. S. R. Fitter, organiser of the British Trust for Ornithology's Black Redstart Inquiry, would be grateful for any records of Black Redstarts in England in the summer of 1947, whether breeding or not, to be sent to him at Greyhounds, Burford, Oxford.

BLACK REDSTART IN CO. CORK IN WINTER.—Col. C. F. Scroope reports a Black Redstart seen on December 24th, 1946, searching for food along the roadside at Rushbrooke railway station, Co. Cork. It was a very dark bird but showed little or no white on the wing. *The Handbook* describes the species as only occasional in winter in Ireland.

EXCEPTIONAL NUMBERS OF PINTAIL IN LEICESTERSHIRE-RUTLAND.—Mr. F. A. Bak informs us that remarkable numbers of Pintail (*Anas a. acuta*) were present at the Eye Valley Reservoir, on the borders of Leicestershire and Rutland in the winters of both 1945-6 and 1946-7. In the former, the maximum number recorded was 120-160 (drakes predominating) on January 13th, 1946. In the past winter the numbers were again very large : 150 were reported on December 27th, 1946, and on January 3rd, 1947, there were possibly 200 present.

ARCTIC SKUA IN CAMBRIDGESHIRE.—Dr. W. H. Thorpe sends us particulars of an immature Arctic Skua (*Stercorarius parasiticus*) which was found dead by the keeper on Wicken Sedge Fen on November 20th, 1946. The remains were not seen by Dr. Thorpe till three weeks later, but the primaries and legs were preserved and compared with skins in the Cambridge University Museum of Zoology. This appears to be the fourth record for the county.

REVIEWS.

Bird Photography. By G. K. Yeates. (Faber & Faber, Ltd., London, 1946). 12s. 6d.

This is an excellent book for the bird photographer, being concise and well planned, so that the information upon any particular aspect of the subject is readily available from the chapter headings. An index would have made reference easier still.

On its own subject the book is sensible and authoritative, and not the least sensible feature is that it does not go beyond its subject. It neither meanders into anecdote, nor tries to deal with the biology of birds, so that anyone buying it must remember that its contents are strictly as set forth on the cover.

However, there will be many ornithologists who will value it on their shelves even if they are not bird photographers, if only for the excellent selection of plates. Particular attention has been paid by the author to the rendering of tones, and some of the best plates, such as those of the Corn-Bunting, Nightjar, Wren and Marsh-Warbler, show the plumage splendidly without any harsh shadows to falsify the tones. Even where the subject has een photographed in strong light, as in the case of the Yellow Wagtail, the plumage still looks natural and the shadows merely serve to give modelling to the body.

The majority of the plates deal with British species, but it is pleasant to have some variation and to find such birds as Penduline Tit and Griffon Vulture included. H. N. SOUTHERN.

Birds of the Night. By Eric Hosking and Cyril Newberry. (Collins, London, 1946). 12s. 6d.

Used though we are to the high standard of excellence set by Mr. Hosking's photographs, the technical successes registered in this volume will compel admiration. The book deals fairly fully with all the five breeding species of British owls, and in each case the illustrations are in the first class. Perhaps rather more space is devoted to the Barn-Owl than to any other species and the photographs are specially pre-eminent. Flashlight and white plumage can produce some appalling results unless skilfully handled, and the rendering of the plumage tones, which are exceptionally delicate and could easily become clogged without a precise balance in all the technical processes involved, could not be bettered.

The text is interesting and well written throughout, and it contains scattered here and there some interesting qualitative data on the types of prey brought to the nest by each species. Nevertheless the narrative form is retained throughout, which makes it rather tedious to collate the information given. In the case of one of the Barn-Owls photographed the main prey recorded were 91 Short-tailed Field-Voles and 21 rats. It seems rather remarkable that no record at all was obtained of the Bank-Vole, *Clethrionomys glareolus*, and it seems possible that the authors may have mixed up some of these with the Short-tailed Field-Voles, *Microtus agrestis*. In most of the illustrations the prey look like *Microtus*, though the one in plate 12 has a suspiciously long tail. In any case there is some overlap between the tail lengths of these two species, and the redder colour of the fur on the back is the best diagnostic feature of *Clethrionomys*, unless one takes the trouble to examine the skulls.

A word of warning should be entered at taking the percentage of rats in the catches as representative of the country as a whole. Many of the photographs were taken in East Anglia, where the rat populations are notably great and are spread along the hedge banks. This situation does not exist in the rest of the country and examinations of food do in fact show a much smaller proportion of rats taken.

What is most striking about the methods and results described in this book is the lack of initiative, which put up with so many hours watching in the dark, when the addition of a dim white or a red light would have made everything easy to observe. This is even more remarkable, when one discovers a special section at the end of the book written by Dr. Stuart Smith, which explains that the owl's eye is practically destitute of cones and is adapted mainly to using the medium and higher wave lengths of the visible spectrum. Owls will therefore not distinguish a red light at all, and some recent work in America has shown that they become very quickly accustomed to a dim white light.

However, these are perhaps rather elaborate points of criticism to raise, and there is little doubt that the general reader will find much that is instructive as well as enjoyable in this book. H. N. SOUTHERN.

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Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species : thus " Great Tit," but " flocks of tits." [In systematic lists the whole name should be in capitals.] The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full : thus " *Parus m. major*," but " *Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of " Short Notes." Maps or graphs must be *neatly* and boldly drawn in Indian ink, with due allowance for reduction when necessary.

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REPORT ON THE DISTRIBUTION AND STATUS OF THE CORN-CRAKE*

BY

C. A. NORRIS.

Part Two.†

A Consideration of the Causes of the Decrease.

Introduction.

This second part of the report on the Corn-Crake (*Crex crex*) has as its main subject the causes for the decrease of this interesting bird, together with notes on habitat, and other relevant points.

It is now nearly nine years since the Inquiry was first started and it is the writer's regret that it has taken so long to bring the work to its conclusion, but six-and-a-half years in the army prevented any continuous effort in this direction.

Results. As indicated in the first part of the report (*antea*, Vol. xxxviii, p. 142) the Inquiry was given wide publicity and received a great deal of support, with the result that over 1,800 questionnaires and 1,400 letters have had to be examined. The task of sorting the wheat from the chaff has been difficult, particularly since by far the majority were content to express opinion without giving any definite facts. It must be said from the start that the case against modern agricultural procedure is most striking, and for this reason a consideration of the hay harvest and the mowing machine fills the major part of this paper.

Acknowledgments. It would be quite impossible to acknowledge here the many hundreds who have contributed to this Inquiry. The following have, however, rendered particular assistance with information and suggestions :—J. L. R. Baiss, A. Beadell, A. W. Boyd, G. Brown, Dr. W. E. Collinge, Mrs. P. Grotrian, Dr. G. C. Low, L. C. Lloyd, The Ministry of Agriculture and Fisheries, A. G. Mason, Dr. H. J. Moon, J. E. Nowers, W. Ogilvie, R. F. Ruttledge, J. G. Stephens, G. W. Temperley, Rev. W. M. Tod, N. Tracy, K. N. Williamson. In addition the help and advice of the late H. F. Witherby was of the greatest value, whilst the support and guidance of W. B. Alexander has been continual and most valuable of all.

Valuable contributions on the status of the Corn-Crake in Europe were received from the following :—Dr. I. Hortling, Dr. E. Lønnberg, F. Haverschmidt, J. Delacour, P. Robica, Prof. E. Stresemann, O. O. Helms, J. Schenk, C. Dupond and J. G. van Marle.

Literature. The search of the literature on the subject was extensive and was mainly carried out by the writer's wife. For the most part, however, references were to distribution and these were incorporated in the first part of the report. The majority of the facts given in this paper are taken direct from letters and questionnaires received during 1938-9.

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* Publication of the British Trust for Ornithology.

† Part One was published in *British Birds*, Vol. xxxviii, pp. 142-148, 162-168.

HABITAT.

From the start it was decided that a critical examination of the habitat of the species must be made and to this end questions 8 in the 1938 inquiry, and 6 in the 1939 inquiry, called for information on this subject. In all some 1,600 answers were given. It has proved far from easy to work out any effective way of showing these results, for they are anything but uniform in their value. To take two extreme examples; after recording a single bird heard calling in Yorkshire a correspondent in answer to the question " What type of land is frequented ?" states, " Meadow, wheat, oats and turnips." Another correspondent from an area where the bird is abundant answers the same question with the words, " Mainly mowing grass." It is obvious that, to place these records in their proper perspective, the observation from the area where the bird is abundant should be given more weight than that which referred to one bird only. To apportion the correct value to every record has proved impossible and in the table that follows all records have been given equal value and then reduced to a percentage of the total records for the area.

TABLE A.

TABLE OF HABITAT.

	Not Cut.	*Cut by Hand.*	*Cut by Machine.*	*Cut by Machine.*	*Miscellaneous.*	*Total of Observations.*
	Grasses all types.	*Grasses all types.*	*Grass for Hay.*	*Cereals.*	*Misc.*	
AREA 1. Peninsula & S. Wales.	10.7	—	68.5	16.5	4.3	121
AREA 2. Channel, Thames and Anglia.	17.4	—	56.5	21.3	4.8	207
AREA 3. Severn and Trent.	13.1	0.5	67.7	16.7	2.0	198
AREA 4. N. Wales, Mersey and Lakes.	12.9	2.7	67.6	12.9	3.9	333
AREA 5. Humber and Tyne.	10.3	0.4	71.4	16.1	1.8	224
AREA 6. W. & E. Lowlands of Scotland.	12.3	1.5	50.8	29.2	6.2	65

	Not Cut.	*Cut by Hand.*	*Cut by Machine.*	*Cut by Machine.*	*Miscell-aneous.*	*Total of Observations.*
	Grasses all types.	*Grasses all types.*	*Grass for Hay.*	*Cereals.*	*Misc.*	
AREA 7. E. Highlands of Scotland.	4.0	1.3	62.7	29.3	2.7	75
AREA 8. N. & W. Highlands & Isles, Scotland.	19.1	22.6	46.9	9.6	1.8	115
AREA 9. S.W. Ireland.	35.3	4.2	47.9	10.5	2.1	48
AREA 10. S.E. Ireland.	25.0	1.7	48.4	18.2	6.7	60
AREA 11. N.W. Ireland.	29.2	18.8	43.7	6.2	2.1	48
AREA 12. N.E. Ireland.	23.0	5.0	50.0	18.0	4.0	100
AVERAGE	15.3	3.5	61.2	16.6	3.4	1,594

NOTE.—For the reasons stated above this table must not be used to compare the use of one type of habitat with another type in the same area. It may, however, be used to compare the selection of the same type of habitat as between one area and another.

TYPES OF HABITAT.—(It has been found expedient to examine these and their relation to the mowing machine at the same time).

(A) GRASSES MOWN FOR HAY.

From the questionnaires and from the mass of general correspondence there can be no doubt that this is by far the most usual and favourite type of habitat. In answer to the simple question whether the Corn-Crake frequented land cut by machinery about 85% answered in the affirmative. Of the grasses mown for hay, lush river meadows seem to come first in order of popularity. The luxuriance of the growth would seem to be an important factor in the selection of breeding territory, and doubtless for this reason rotation grasses are very popular. It was reported in at least three places that preference was shown for temporary rotation grassland over permanent grass, the latter being deserted in favour of the former. After the hay harvest other types of land have to be found, but it is only when there is no mowing grass available that other types are utilized to any extent.

(B) GRASSES CUT BY HAND.

The amount of grass cut by hand is now very small with the marked exception of the extreme north and west of Scotland and parts of Ireland. In nearly all cases hand cutting is restricted to small fields usually attached to crofts in the more remote places. Only in the Shetlands and in both Inner and Outer Hebrides does there appear to be more hay cut by hand than by machinery. Throughout Ireland there is still a certain amount of hand cutting, but this is now found mainly in the north-west and very little seems to be done in the south-east. It is significant that it is in the areas where small fields and the old methods of hand scything prevail that the Corn-Crake is still most abundant and showing no signs of decrease.

(C) GRASSES, ETC. NOT MOWN OR CUT.

(1) *Rough and coarse grassland.* In some parts of the country, notably in the north-west of Scotland, there is not the same amount of good hay meadow as elsewhere. In these areas the Corn-Crake may frequently be found in this type of habitat. Rough grass bordering heather-clad moor comes under this heading. It is noted in some places that the bird may be found where the grass is hardly thick enough to give concealment when it first arrives. It is thought, however, that choice of such areas must be in the nature of second best when the more suitable territories are already taken by other birds. Areas where this type of territory is used are found to coincide with those where the Corn-Crake is most abundant.

(2) *Marshy and swampy grassland, etc.* Under this heading is included the near-bog type of habitat which is found more frequently in Ireland than elsewhere. In both south-west and north-west Ireland the index for this type of terrain is 14 against an average of 3.7 for the rest of the British Isles. In England it has been found that this type of land has often held birds for some years after they have left the surrounding districts. In at least one area a local re-occupation took place in terrain which would come under this heading. It must, however, be stated that actual swamp and marsh with water present are not frequented, but only the margins where there is an abundance of rank vegetation, which may include *Iris*, rushes, nettles, etc.

(3) *Pasture.* In England this is not a very popular type of habitat, probably because in the majority of cases the grass is kept too short to be attractive to the species. In Ireland, on the other hand, pasture would seem to be more luxuriant and less heavily grazed, with the result that there is more cover for the crake. For the whole of Ireland the index figure for this type of habitat is 12 compared with only 6.5 for the rest of the British Isles. It must be noted under this heading that this type of land is more frequently used after the hay harvest has deprived the birds of the mowing grass which is their first choice.

(D) CEREALS.

The figures in the habitat table are rather misleading under this heading, for it is certain that many correspondents in sending in their returns have included references to birds on passage. This is especially noticeable in the south and east of England, where records of this nature are more numerous. Even more important are the many references to birds which have been driven by the hay harvest to seek other cover. Again and again in the voluminous correspondence it is noted that, after the hay is cut, birds will go into wheat, barley and oats. Breeding in wheat and barley would seem to be comparatively rare, but it is rather less so in oats. The high cereal index figure for the Lowlands and Eastern Highlands of Scotland reflects the comparative preference for oats compared with other cereals. It is interesting to note, by way of contrast, that in the areas where the Corn-Crake is most numerous, the index for cereals is the lowest for the British Isles. It is thought that this may be due to the later date of the hay harvest in these areas, resulting in a decreased demand for an alternative habitat.

(E) MISCELLANEOUS.

Under this heading are placed all records not covered in previous categories. In the majority of cases that have been reported these types of habitat are given as a second or even a third choice. No case of birds living entirely or breeding in these surroundings has been recorded during the present Inquiry. In most cases it is where these types of land closely border grassland that such records occur. Some, however, refer to birds on migration.

(1) *Root Crops.* In all some forty records of birds heard calling in this type of habitat were sent in. Potatoes were specifically reported 11 times and turnips 12, whilst mangolds and sugar-beet were each mentioned, though their use must be exceptional.

(2) *Asparagus, Peas and Beans.* Single records were sent in for each of these, though here again their use must be exceptional.

(3) *Bracken, Gorse, Heather, etc.* There were seven records of birds calling in bracken, one in gorse and three in heather, so that choice of this type of land must also be classed as most unusual, and, as in other cases, be attributed to birds straying from their normal territory. It is as well to note that the Corn-Crake will at times move into almost any sort of cover. Records of birds calling in old quarries, rubbish-pits, tangled gardens and the like are not unusual, always provided there is an adequate amount of cover available. Similarly the use of hedgerows, particularly where there is a thick undergrowth, is common especially after the hay harvest.

AVAILABILITY OF SUITABLE HABITAT.

Some idea of the potential breeding area of the species can be gained from an examination of the following table. This is based on figures provided by the Ministry of Agriculture and Fisheries, and by the Department of Industry and Commerce in Eire. The figures for Great Britain and Northern Ireland only have been brought up to date to show the considerable decrease in the area of permanent grassland for hay which has taken place during the recent war. Although this is in part offset by an increase of nearly a million acres of rotation grasses there remains an over-all reduction in potential breeding-grounds of very nearly twenty per cent. on the 1939 figures. This can but have its effect on the Corn-Crake. The increase in rotation grasses is really a small consolation, for these tend to be mown rather earlier than the permanent meadows, with a correspondingly increased risk to the nests and young of the crake.

TABLE B

ACREAGE OF CROPS

(Thousand acres).

	Great Britain and Ireland.			*Great Britain and Northern Ireland only.*	
	1895	1918	1927	1939	1945
Permanent Grass for Hay	6,419	5,950	6,485	5,009	2,702
Rotation Grasses for Hay	2,939	2,803	2,771	1,902	2,830
TOTAL	9,358	8,753	9,256	6,911	5,532

CAUSES OF DECREASE.

(A) THE MOWING MACHINE.

General. As already mentioned in the introduction, the weight of evidence against the mowing machine has been found to be most convincing. Even before the first World War, evidence was being brought to light of the destruction of eggs, young, and even of adult birds by the blades of mowing machines. In order to see the decrease in its proper perspective the introduction of mechanical mowing must be examined from its inception.

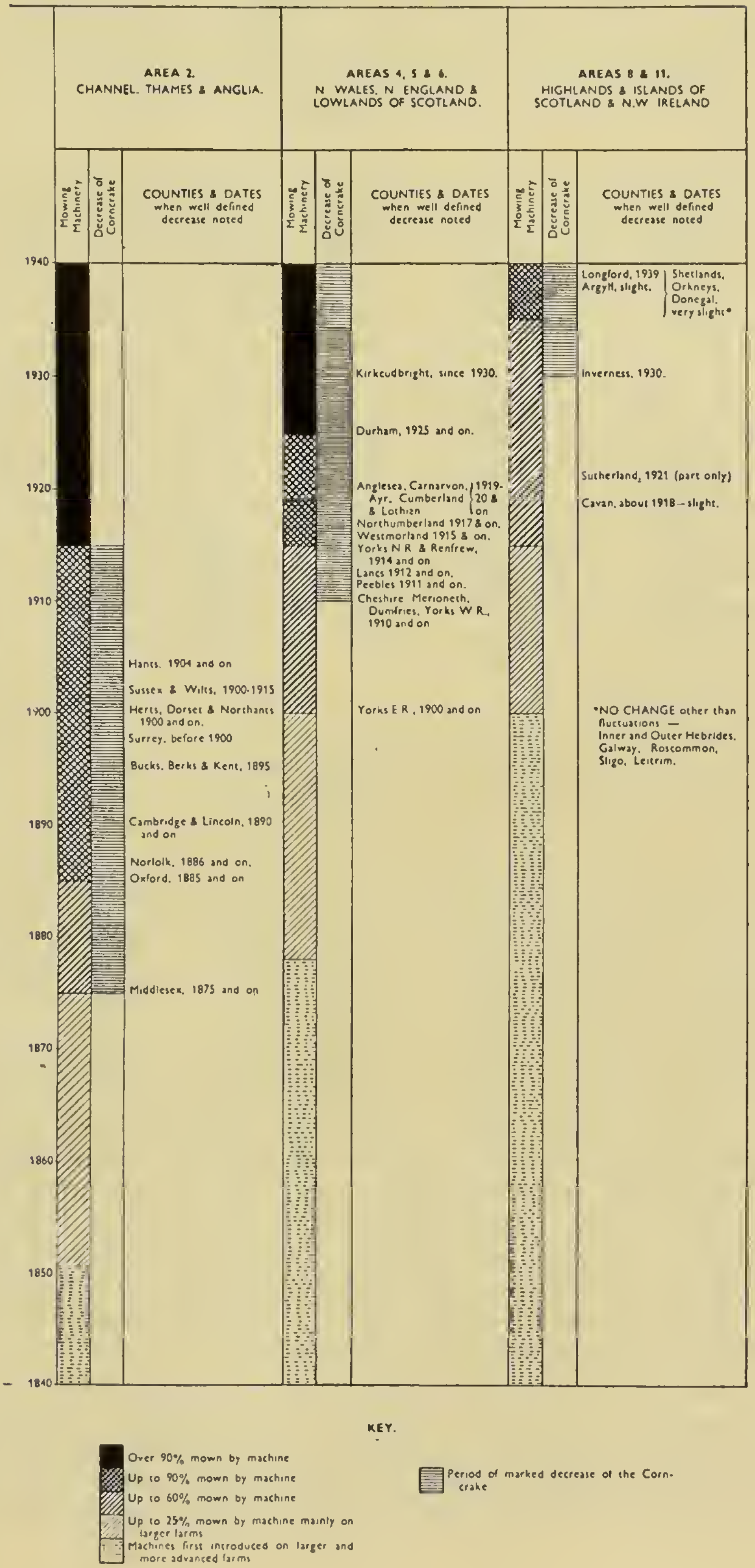
Historical Survey. Up till about 1850, and in most places indeed much later, hay was mown almost entirely by hand. In many areas large numbers of Irish labourers were used for the purpose. As far as I have been able to ascertain, the first mowing machine was invented in 1814, but development was very slow till about 1840. It is notable that at the Royal Agricultural Society's Show at Oxford in 1839 not a single machine which had anything to do with hay was exhibited. The next five to ten years saw a considerable advance, however, and by 1852 it was noted in an agricultural magazine that "—these machines are great favourites with Middlesex farmers." It would appear that a machine manufactured by a firm named Smith was the most popular at this time. In

1865 the moveable cutter-bar, which gave freedom in the vertical plane, was introduced. This allowed the cutter-bar to follow the ground more closely and adapt itself to ridge and furrow, with the result that hay could be mown much closer than had previously been possible. From 1875 onwards the development of this machine was in detail only, the principles remaining unchanged. It is reported that even today machines made at this time are still to be found in common use. Since the 1914 war the main development has been more in the size of the machines, this being made possible by the introduction of the tractor. Horse-drawn machines had a normal cutting width of four feet six inches, but this has been increased to six, seven and even eight feet.

Spread of the Machine. It has been found most difficult to get a true picture of the way in which use of the machine spread in the British Isles, but from the little information that is available it is certain that it was first developed in the south and south-eastern counties of England. It has been estimated that by 1875 about 25 per cent. of mowing-grass, on the more up-to-date farms south east of a line from the Humber to the Severn, but excluding the Peninsula province, was cut by horse-drawn machines. North of this line mowing-machines might be found on scattered farms, but they appear to have been few and far between and were for the most part limited to the larger estates. By 1890 well over 60 per cent. of the hay crop was cut by machines in the south-east of England, but still rather less than 25 per cent. north-west of the Humber-Severn line and then mainly on the larger farms and in the more up-to-date areas. Mowing by machine was still almost unknown in the major part of Scotland and Ireland, and, generally speaking, wherever farms were small the hand scythe still reigned supreme. Towards the end of the nineteenth century very considerable increases in the cost of labour had made mowing by hand of any extensive area an expensive item. This gave further impetus to the sales of mowing-machines, so that by 1914 it is probable that in the south-east of England 90 per cent. of grasses for hay were cut by machine. In the north of England, Wales, Scotland and in Ireland the machine still made slow and irregular progress, but on the larger farms and estates and in the more flourishing areas the hand scythe had been replaced. In the period between the wars increase in the use of machinery was general throughout the British Isles and, with the replacement of the horse by the tractor, the machines became bigger and more rapid, with the result that the hay harvest, which a hundred years before had taken several weeks, is now over in almost a matter of days.

In the more remote parts of these islands agricultural progress has been slow, and even now on the small holdings of the Western Isles of Scotland, the west of Ireland and in other remote places the small hay fields are still often cut by hand. The hand scythe is, however, fast vanishing even in these places, and the recent

DIAGRAM A to show the approximate relationship between the increase in the use of the mowing machine and the decrease in the Corn-Crake.



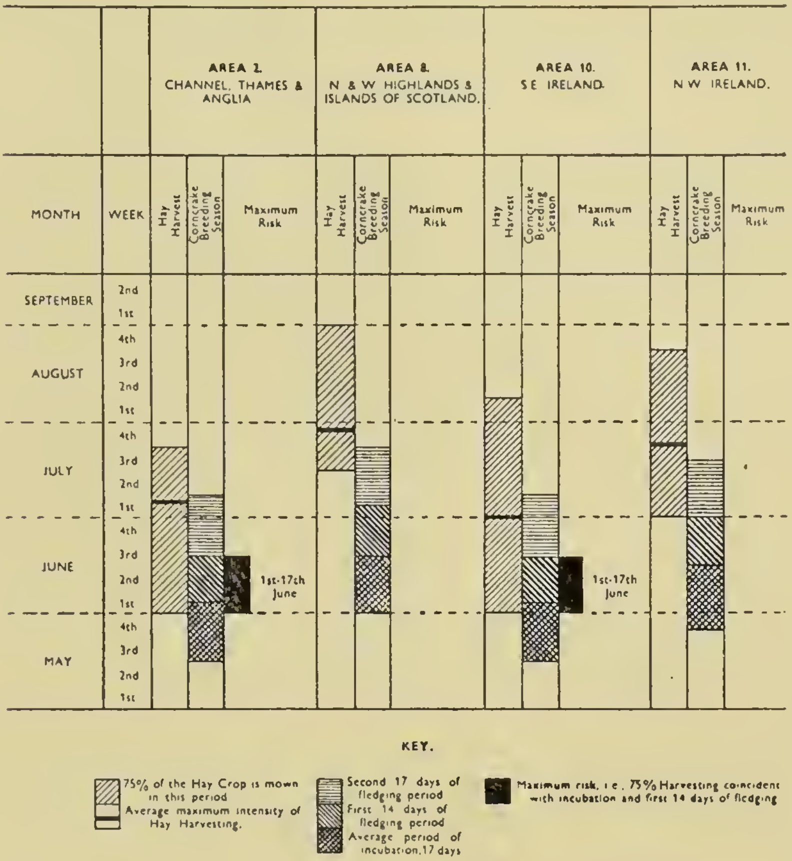
war has doubtless acted as a stimulus in this direction. It is significant that it is in the areas where the mowing-machine is least abundant that the Corn-Crake is still most numerous. It is also a striking fact that the decrease of the species was first noted in the south-east of England, where the mowing-machine had its infancy.

Altered Procedure. The introduction of the mowing-machine brought with it other changes which have doubtless had their effects on the Corn-Crake. The mowing of a field in the early part of last century was of necessity a lengthy business, with the result that hay-making on a farm of average size might take five, six or even seven weeks. This meant that for a brood of chicks, even if newly-hatched, it was possible, not only to keep ahead of the scythe-men in the field being cut, but to move into another hay-field during the night with a reasonable chance of remaining there undisturbed for several weeks. It must be remembered that the comparatively slow speed of the scythe-men could always be outpaced by a chick even if only a day old. It is an important fact that mowing in spiral fashion, working from the edges of a field inwards so as to leave a small island of hay in the centre, is the rule, since this method has been found most economical in practice with the mowing-machine. This method was not necessarily employed by the scythe-men of old. As is well known, the present method drives everything that runs to the centre of the field, there to await the final cuts of the machine or run the gauntlet of the local inhabitants collected for the sport of shooting anything that may be there. It must also be remembered that whilst it is obviously impossible for the driver of a tractor to spot either nest or chicks till the very last moment, when it may well be too late, the scythe-man would have a far better chance and, in those less hectic times, might take the trouble to remove them to a place of safety or leave a small patch of hay for their cover. In these mechanical days such an act must be rare indeed.

Dates of Mowing. Before the full facts on the subject of nest and chick destruction are discussed the date of the hay harvest needs critical examination, for it is here that the crux of the matter lies. In the 1939 inquiry the dates of mowing were asked for and over 300 reports were received. Gaps in some areas have since been filled by information supplied by County War Agricultural Committees. A summary of the information obtained is given as Appendix A, but the diagrams which follow illustrate all too clearly the relationship between the breeding-season of the Corn-Crake and the dates of the hay harvest.

A glance at the diagrams shows that the period of maximum risk to eggs and chicks varies in the different areas under consideration. It will be noticed that in the Highlands and Islands of Scotland approximately 75 per cent. of the mowing is done after the young birds are two and-a-half weeks old, and in the case of

DIAGRAM B to show the relationship between the date of the hay harvest and the incubation and fledging periods of the Corn-Crake



the west of Ireland after they are two weeks old. It is hardly surprising that it is in precisely these areas that the Corn-Crake is still flourishing. Compare this with the case of the whole of south-east England, where mowing takes place on an average a month earlier than in the west of Scotland. In this area it is found that practically the whole of the fledging-period coincides with the period of most intense hay harvesting with the result that whole broods of chicks are, or were, slaughtered annually.

The position in Ireland is of particular interest, for it is here that the decrease can be studied directly as it is actually taking place at the present time. The diagrams show a sharp difference in the timing of the hay harvest as between east and west, that in the south-east being a full month earlier than that in the north-west. As shown in the first part of this report it is in the east of the country that the Corn-Crake has already suffered a considerable decrease.

An Earlier Hay Harvest. In 1938 several correspondents stated that the hay harvest in their areas was now taking place earlier by two to three weeks than had been the case at the end of the last century. When this statement was put forward in an interim report produced early in 1939 it was found that the early hay harvest view was far from unanimous. In order to discover exactly what the facts were, a series of questions was addressed to the principals of agricultural establishments and to selected county agricultural advisers. It was again found that opinion differed, but that mowing does take place earlier than formerly, and the statement that this is encouraged by agricultural training establishments was frequently repeated. As stated by a correspondent from Ireland ; " Farmers, partly because they discovered, or were taught, that early mown hay has a greater nutritive value than hay allowed to get ripe, and partly because they can get over their work more quickly with the aid of machinery, start mowing earlier and earlier, until now the custom is to begin after the middle of June and, weather permitting, finish before the end of July." This view was reinforced by numerous correspondents and it would appear to be a fact that farmers are urged to cut their hay earlier for the reason stated above. In some areas and by some observers it is doubted if any significant change has taken place, but the weight of evidence is strongly suggestive that, on average, the hay harvest is now from ten to fourteen days earlier than forty-five years ago. The whole case was perhaps best summarized by the Agricultural Organizer for the Worcestershire County Council, who pointed out that good farmers started early and bad farmers late.

It is an inescapable fact that the present tendency to cut hay earlier will bring the hay harvest and the breeding-season of the Corn-Crake into even closer relationship, with a correspondingly increased risk to the eggs and young of the species.

One point which would seem well established is that even on farms where mowing does not start earlier, it is certainly completed earlier than before, a change for which the modern mowing-machine is responsible.

Evidence of Casualties to Eggs and Chick directly attributable to the Mowing-Machine.

In answer to the question on this subject over two hundred correspondents in 1938 gave it as their opinion that the mowing-machine, coupled with the date of the hay harvest, was responsible for the decrease of the Corn-Crake. In addition to the answers given on the questionnaires letters were received from over forty individuals giving specific instances in which eggs and (or) chicks had been destroyed by the machine. In many cases these reports were from farmers who had themselves been instrumental in killing young birds in this manner. Reports of this nature came from practically every county in England and Wales, from fourteen counties in Scotland and from nine counties in Ireland. Some idea of what is happening is illustrated by the extracts of five letters which follow. These are taken at random and are typical of the majority.

(*a*) " In the year referred to we saw a different sight. There were seven or eight Corn-Crakes' nests in a six acre field of meadow being mown. Not one escaped. Chicks, recently hatched out and too young to run from danger, were butchered wholesale, while in a few cases eggs not yet hatched out were crushed by the cutter-bar of the mower." (J. Connell, Co. Meath).

(*b*) " Frequently while cutting hay, as I near the finish of the cut, I have to stop the reaper and remove the young Corn-Crakes to safety, and although I try to be as careful as possible there are very often one or two killed by the knife or so badly damaged that I usually destroy them."
(J. MacNaughton, Perthshire).

(*c*) " In 1931 the grass and other growth on a large part of the 65 acres comprising Malvern U.D.C. Sewage Disposal Works was cut by machines and seven Landrail nests were destroyed. The bulk of the land has not been cut since, but not one Landrail has been seen since." (S. E. Warner).

(*d*) " It was in the years 1892-95 at Chelsham, Surrey, that I saw how the Landrails began to be destroyed. It was the advent of the mowing-machine that wrought destruction in their ranks. I saw whole nests of youngsters cut to pieces in the meadows where they nested. Before that all our meadows were cut by gangs of men with scythes."
(A. Beadell).

(*e*) " I have continuous notes regarding this species, more particularly relating to the Sheffield and Barnsley areas and extending over a period of 45 years. I am convinced that there has been a very considerable reduction in numbers and that this is chiefly due to the machine cutting, which undoubtedly destroys many nests and birds, both old and young, of which fact I have a number of indisputable proofs."
(A. Whitaker).

The same observer quoted diary extracts from 1892 up to 1938 in which sixteen instances of the destruction of nests, eggs and young are recorded in detail.

Evidence against the Mowing-Machine being responsible for the decrease.

Although by far the majority of opinions, and of facts, point to the mowing-machine as the cause of the decrease there are considerations raised which, on the face of it, would suggest that the machine is not necessarily responsible. These fall under four main headings :—

(*a*) Reports of recent decrease in areas where there has been no recent change in agricultural procedure, i.e., mowing-machines are in use and have been for years, but only now is the species decreasing. Example : a correspondent from Cheshire states, " The decrease between 1930 and 1938 is inexplicable. There has been no change in farming operations."

(*b*) Reports of birds still holding out in some areas where agricultural procedure is such that the species should have been exterminated long ago. Examples of this have been received mostly from the provinces of Mersey, Lakes and Humber and Tyne.

(*c*) Reports of recent decrease in areas where the lateness of the hay harvest might suggest that casualties are rare. Examples of this have been received from south-west Scotland and from Ireland.

(*d*) Reports that the species has either decreased in, or completely deserted, areas where the mowing-machine has not been used and is not therefore responsible. Isolated instances of this have been reported from several counties in England as well as in Scotland and in Ireland.

In considering these arguments we may take first points (*a*) and (*b*). One of the facts that has been brought to light by the Inquiry is that if some really suitable area is colonized and the birds are allowed to breed freely and without any disturbance from the mowing-machine, a population may be built up in the surrounding district. The whole colony will survive even with a heavy mortality rate outside the central nucleus. It follows that if for any reason the central area becomes unsuitable or is deserted the whole colony is likely to die out. This has been seen to apply in three quite small areas where from five to twenty-five pairs were involved and where the rise and fall of the colony had been followed. It is, however, obvious that the larger the area in which breeding goes on undisturbed the larger may be the area with a Corn-Crake population maintained by this nucleus. It is suggested that in areas where birds are found regularly, in spite of regular mowing during the breeding-season, there is some such reservoir acting as a nucleus. It must also be remembered that in the vast majority of cases it is the young birds and eggs that are destroyed by the machine, so that adults may well continue to live on in an area for some years although their eggs and young are regularly massacred at the time of the hay harvest.

Points (*c*) and (*d*) are, it is thought, bound up with the whole question of this bird's frequent fluctuations, and an attempted explanation of these may also answer the main questions. Under the heading of " Habitat " it was shown that the lush river meadow comes first in order of popularity and that the luxuriance of growth would seem to be an important factor in the selection of breeding territory. It has also been shown that in a great area of the British Isles nesting in this type of habitat has resulted in a heavy mortality leading, it is believed, to the virtual extermination of the species throughout a large area in the south and east of these islands. To the Corn-Crake, returning from its winter-quarters, the thousands of acres of apparently suitable terrain in the south and east of England and elsewhere, over which it must pass, must still remain attractive as potential breeding quarters. Strong headwinds, fog or some other climatic agent might well be enough to damp the birds' instinct to return to the area in which it was raised, and cause it to settle once more in an area long ago deserted by the species. It is impossible to assess the strength of instinct which causes the Corn-Crake to return to its place of birth and it is similarly impossible to determine the conditions necessary to alter the normal routine. If, however, the basic instinct is not particularly strong, and the high incidence of irruptions encourages this belief, then a heavy drain on the main breeding reservoir must be continual. These irruptions must often result in the complete desertion of areas which are in every way suitable and in which the bird has nested undisturbed for years.

THE SITUATION IN S.E. IRELAND.

It will be noticed, from a study of the table on the dates of mowing, that in S.E. Ireland the period of the hay harvest and the breeding-season of the Corn-Crake are similar to those in the south-east of England. It may well be asked why the decrease in the Corn-Crake did not start, or at least make itself known, in S.E. Ireland at the same time as in S.E. England, or why has the decrease not been far more severe in S.E. Ireland even in recent years. There is probably more than one answer to these questions, though the most obvious is that the mowing-machine was not in general use in S.E. Ireland for many years after it had gained popularity in S.E. England. Of almost equal importance is the matter of habitat. The table given on page 228 shows that the index for Corn-Crake in areas not mown either by hand or by machinery is well above average. As has already been shown, the principal requirement of the Corn-Crake is good thick grass, and in England this almost invariably means grass mown for hay. This, however, is not necessarily the case in Ireland, where even permanent pasture is often of sufficient luxuriance to give the needful cover required by this species. In addition it must be remembered that in Ireland there is far more rough grassland, often associated with semi-swamp conditions, which is only occasionally grazed and virtually never mown except with a hand scythe. Such places would act as a nucleus for the surrounding areas, where chick mortality is high, with the result that the whole tendency to decrease would be greatly retarded and would certainly be much slower than was the case in S.E. England.

(B) PREDATORS.

Although doubtless of secondary importance, one of the more frequent causes of decrease put forward by correspondents comes under this heading. Most reports follow rather similar lines, telling of the decrease in the protection of game with a corresponding increase in the numbers of vermin. The breaking up of large estates and the fact that far fewer keepers are now maintained throughout the British Isles are bound to have had their effect in this direction. Considerable increases in vermin have been noted in many places, but especially in Ireland, where the increase of foxes, crows, Magpies and birds of prey must be widespread. Reports of the Corn-Crake being killed by most types of predator were sent in, varying from the account of a Peregrine Falcon killing and eating a bird in Anglesey to the activities of cats. Several accounts of cats being found with adult Corn-Crakes have been received and there can be little doubt that in the vicinity of built-up areas these animals may take a not inconsiderable toll. There is, however, no reason to believe that even a more general increase in predators than has in fact taken place would be likely to have any great effect on the numbers of the species.

(c) HUMAN INTERFERENCE.

Reports of the luckless Corn-Crake being shot in early autumn are not infrequent, and it would seem that, to a section of the community at least, this comparatively slow flying bird proves too great a temptation. This applies particularly to the shooting of birds as they leave the last stand of wheat at harvest. From Swanage and the Isle of Purbeck come records of small numbers being shot each year on migration and it is on record that no less than 76 were taken in the autumn of 1913 after several days of bad weather had caused a hold up of migration. Another informant states that he shot 40 in a season at the end of last century. Shooting in the long run is not, however, likely to have much effect on the numbers of this bird in this country as there is, fortunately, very general condemnation of those who indulge in this form of entertainment.

Some disturbance of individual birds is caused, as is hardly surprising, by infuriated householders when a calling male has taken up its station too close to human habitations. Several instances of birds being shot, their eggs taken and of their having been generally hounded out have been sent in.*

During the whole Inquiry no record of egg collecting or collecting of birds for their own sake was sent in. Taken all round the Corn-Crake is very little interferred with in this country, with of course the exception of the hay harvest, and on all sides there is great regret at the decrease that has taken place. It is generally realized that the bird does much good on the land and in many country districts every effort is taken to spare both adults and young.

Three other factors may be mentioned here ; building, wire-netting and motor traffic. There have been several notices of former breeding areas being built over in the vicinity of the larger towns, but the effect of this must be negligible. Two instances of Corn-Crakes becoming entangled in the meshes of wire-netting have been sent in but, since this form of fencing is comparatively uncommon, mortality from this cause must be infrequent. There was a single case of a bird which had apparently been run over by a car, but again, in a species which is generally loath to leave cover, casualties from this cause must remain negligible.

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*During the Inquiry the writer was asked on more than one occasion how to get rid of birds !

(D) DISEASE.

No evidence to suggest that disease was in any way responsible was brought forward at any time during the Inquiry.

(E) TELEGRAPH WIRES, POWER WIRES, ETC.

Only two cases of birds being found below wires were sent in. In each case it is probable that the birds were on migration. Since this species flies very little other than at migration it is unlikely that any large number would perish in this way.

(F) ARTIFICIAL FERTILIZERS.

Because the spread in the use of artificial manures has taken place, in some areas, during much the same period as the decrease of the Corn-Crake it was at first thought that there might be some connexion. This has, however, been found to be far from the case and there has been no concrete evidence produced to suggest that the use of fertilizers has any deleterious effect on the species. Ample evidence was produced from widely separated places in the British Isles to show that birds regularly frequent areas treated with basic slag, lime, etc., and often use fields thus treated in preference to others. The more luxuriant growth produced by fertilizers is doubtless responsible for this. The majority of artificial manures are put on the land in the autumn, so that their immediate surface effect will have passed off long before the return of the Corn-Crake.

(G) MORTALITY ON MIGRATION.

Early on in the Inquiry one of the most baffling questions was that of the sudden disappearance of whole " colonies " which had apparently been wiped out in a single winter. The usual report was that several birds had been heard each year, but this year none had arrived. This set of circumstances led people to believe that large numbers were meeting their fate whilst away on migration, but when it is seen that every year birds are appearing in new areas on their return to this country, it would appear that winter mortality is not on an unduly heavy scale. All the normal hazards attendant on migration apply equally, of course, to the Corn-Crake, but nothing unusual has been found and it is, for instance, safe to say that the species is not subjected to any great persecution en route as was the Quail in North Africa. A small number are shot and captured in this area, but their number is insignificant.

WINTER-QUARTERS.

The possibility that in its winter quarters the species was being persecuted has been considered, but it has been found impossible to gather much in the way of data. The Corn-Crake's chief winter quarters lie in the eastern half of Africa south of the Equator. where it may be found over a wide range of territory and at varying altitudes. Inquiries have produced no evidence to support the theory that large numbers are caught by natives, nor does there appear to be any marked change in the vast areas that they visit at this time of year. It is an interesting and little known fact that the Corn-Crake moults all its flight and tail-feathers in October almost immediately on arrival in Africa, and thereafter becomes a complete "runner" for three to four weeks. This, in a species always more ready to foot it than fly from its foes, would hardly involve any great risk to the species unless a phenomenal increase in ground vermin were to take place. Of this there is no indication.

PROSPECTS.

If the present increase in agricultural efficiency is maintained and particularly if the policy of early mowing is pursued in the more remote areas, then the species will in all probability be reduced in status to that of a rarity in the major part of the British Isles. Distribution is always likely to remain "patchy," with small loose colonies based on areas which, for some reason or other, have remained undisturbed at the breeding-season. In the extreme north and west of Scotland and Ireland where, for reasons of climate, the hay harvest must always be much later than elsewhere, the species may be expected to hold its own for many years to come providing other conditions remain unchanged.

THE DECREASE IN EUROPE.

Nothing has so far been said in this paper about the causes of the decrease which have been recorded from Europe. As was pointed out in the first part of this report (*British Birds*, Vol. xxxviii, pp. 167-8) the decrease has been more recent than in these islands, a fact which is not surprising since the introduction of the mowing-machine in Europe came well after its development in this country. Evidence on the introduction of the mowing-machine, the date of the hay harvest and its effect on the species has been received from Finland, Sweden, Denmark, Holland and Belgium. Correspondents in Finland reported that the introduction of the machine some 20 years earlier had corresponded with the beginning of the Corn-Crake's decline. It also mentioned that hay is cut earlier than formerly. From Sweden comes much the same story, earlier mowing with the machine causing very heavy mortality. As one correspondent puts it: "In this way almost every hatching on cultivated fields is made impossible, so that by this the propagation of the Corn-Crake is frustrated in almost every case, and the bird is consequently becoming more and more rare." In Denmark and Holland it is very much the same. In Belgium, where much of the Corn-Crake's habitat is cut by hand, it is estimated that, in areas where the machine is used, half the nests are destroyed and that very often the sitting bird is killed. It is reported from Stettin, in northern Germany, that considerable casualties have taken place at the hay harvest even with the hand scythe, the result of earlier harvesting of the hay crop.

It will be seen from these notes that the evidence produced to explain the decrease in the Corn-Crake in the British Isles appears to fit the case on the Continent also. It is, however, important to realize that agriculture, particularly in eastern Europe, is as yet much less developed than our own. Nothing like the same high percentage of hay is cut by machinery and vast areas of grassland are cut seldom, if at all. These factors, so long as they remain, should be of great importance in the preservation of the species. It remains only to be said that no other explanation of the decrease that has taken place fits, not only the British Isles, but the whole area in which this species has decreased.

CONCLUSION.

It is believed that the following points have been proved beyond any reasonable doubt.

1. That the mowing-machine is responsible for a very heavy toll of eggs and young birds at the time of the hay harvest in areas where this coincides with the birds' breeding-season.
2. That in areas where the mowing-machine is not in common use the Corn-Crake is still flourishing without any well defined sign of decrease.
3. That in areas where the hay harvest takes place later than the first stage of fledging the decrease has been less severe or non-existent.
4. That the introduction of the mowing-machine and the increase in its use has coincided to a remarkable degree with the over-all decrease of the Corn-Crake in those areas where the hay harvest and the breeding-season coincide.
5. That the shortening of the period of the hay harvest as the result of the improved methods of mowing has reduced the chances of the Corn-Crake hatching its eggs or raising its young in many areas.
6. That the present tendency to mow hay at an earlier date than half a century ago brings the breeding-season of the species and the hay harvest into even closer relationship.

These six findings, which the author considers are abundantly proved, point to but one answer to the long standing question as to the cause of the decrease of the Corn-Crake. The mowing-machine must stand convicted for the great and continual decrease that has taken and is still taking place in the British Isles. It is certain that no species can stand up to the annual destruction of its eggs and especially its young and remain unchanged in numbers.

Of the other possible causes of decrease which have been examined none, it is believed, are of any great import as compared with the main finding of the Inquiry.

APPENDIX "A".

AVERAGE DATES OF THE MOWING OF HAY.

	Number of Reports Received.	*Average Maximum Intensity of Hay Harvesting.*	*75% of the Hay Crop is Mown in this Period (All dates inclusive).*
AREA 1. Peninsula and S. Wales.	18	8th July	2nd week June to 1st week August.
AREA 2. Channel, Thames and Anglia.	14	4th July	1st week June to 3rd week July.
AREA 3. Severn and Trent.	21	4th July	2nd week June to the end of July.
AREA 4. N. Wales, Mersey and Lakes.	116	6th July	2nd week June to 1st week August.
AREA 5. Humber and Tyne.	88	10th July	3rd week June to 1st week August.
AREA 6. W. & E. Lowlands of Scotland.	17	13th July	1st week July to 3rd week July.
AREA 7. E. Highlands of Scotland.	20	14th July	1st week July to 4th week July.
AREA 8. N. & W. Highlands & Isles, Scotland.	36	29th July	2nd week July to 4th week August.
AREA 9. S.W. Ireland.	29	17th July	4th week June to 2nd week August.
AREA 10. S.E. Ireland.	20	1st July	1st week June to 1st week August.
AREA 11. N.W. Ireland.	30	23rd July	1st week July to 3rd week August.
AREA 12. N.E. Ireland.	40	9th July	3rd week June to 4th week August.

NOTES.

BEHAVIOUR OF YOUNG HOODED CROW WITH ANTS.

In connexion with the note by W. Condry (*antea*, p. 114) on the behaviour with ants of a young Carrion Crow (*Corvus c. corone*) reared in captivity, the following may be worth recording for comparison. A Hooded Crow (*Corvus c. cornix*) taken from the nest in Ross-shire on June 4th, 1946, between 3-4 weeks after hatching, was reared by me in an aviary in Cornwall. On July 10th this bird was observed to lie on a cemented area of the floor where some ants were running about, with wings half spread and the same fluttering and flapping action, as of a bird having a bath, that was observed by Mr. Condry. It also pecked at some of the ants ; these were probably less numerous than in the place described by Mr. Condry. No ants were seen on the plumage, nor was any attempt to place them there observed, though a few were picked up in the beak.

No similar behaviour has been noticed with this bird since, but as it was also reared in captivity, with no possibility of imitating other birds, it seems worth recording as further evidence of the " instinctive " nature of this behaviour. C. J. F. Coombs.

CARRION CROW TAKING FOOD OFF WATER.

The publication of Mr. F. C. Bromley's note on this subject (*antea*, p. 158) has resulted in our receiving reports from several observers showing that this habit, which has long been known on the Continent, is evidently not uncommon here, though apparently not previously recorded in our ornithological literature.

Mr. R. W. Hayman takes priority with notes, dating back earlier than 1925, of Carrion Crows (*Corvus c. corone*) watching the river from barges at Chelsea for floating scraps ; another note for September, 1925, of one taking bread from the Long Water, Kensington Gardens, "as neatly as any Gull"; the latest on May 19th, 1946, of a dead fish taken in the bill and carried away. Miss E. McEwen records a similar incident at the Long Water on May 19th, 1947. Mr. C. L. Collenette draws attention to a reference to the same habit in his *History of Richmond Park* : bread was taken from the surface of the Pen Ponds there on several occasions before the recent war ; two or three times a crow was seen stooping at a brood of young Mallard (*Anas p. platyrhyncha*) ducklings, which dived in time to escape. In May, 1943, Mr. J. Tennent saw a fish about 7 inches long taken from the surface of the River Stour at Bryanston, Dorset ; there was no preliminary hover and the crow flew directly down from a tree perch. At Llyn Hilyn Pool, Radnorshire, Mr. R. H. Baillie twice saw one or two crows take food from the surface in the bill on April 19th, 1947. Travelling in a barge between Nottingham and Hull from May 15th to 30th, 1947, Mr. P. P. L. Stevenson noted five separate occasions on which crows snatched food from the river in the bill, "without hesitation, . . . very neatly and with hardly a splash." One bird, watching the river from a high bank, "dived down, picked a large mouthful from the water, flew back to the bank and began to devour it . . ." The records of Messrs. R. F. Chatfield and E. H. Lousley differ slightly from the rest in that the crow remained upon the water for two or three seconds. Mr. Chatfield described the action, seen at Stanford Reservoir on the Leicestershire-Northamptonshire boundary in November 1945, as "tern-like"; the bird however rose with something in its claws. In mid-February, 1947, Mr. Lousley saw a Carrion Crow chasing a Black-headed Gull (*Larus r. ridibundus*) over the Thames at Port Meadow, Oxford ; the gull dropped the food and the crow "immediately settled on the water, keeping its wings outstretched and well clear, picked the food up in its beak and took it to the bank ; . . . its whole weight appeared to be supported."

AUTUMN PAIRING OF JACKDAWS.

AT 11 a.m. on November 11th, 1945, near Alness, Ross-shire, I saw 58 Jackdaws (*Corvus monedula spermologus*) sitting on power cables which span the river gorge above the town. All the birds were sitting in pairs, with only a few inches between the two birds of a pair, but several yards between pairs, with the exception of two birds which were sitting singly. Some of the birds were preening, and some were apparently preening each other—one bird pecking at and stroking the nape of the other of the pair. The pairing appeared to be at random: thus in one instance two pairs AB and CD were sitting about three yards apart when A and C flew off ; after a few minutes D flew along the wire and sat a few inches from B. Later the whole flock flew off up the gorge and returned in about three minutes to their original position.

At 9.50 a.m. on November 12th there were 72 birds on the wires, of which the majority were in well defined pairs, but 12 were sitting singly. Later in the morning over 80 birds were counted. Once every ten minutes or so the whole or part of the flock left the wires and flew up the valley, returning in about two minutes. When they returned they settled apparently at random on the wires with no clearly defined pairs, but for several minutes the flock was restless, parties of up to 30 flying from one part of the wires to another, neighbouring birds shuffling together to form pairs, etc., until the whole flock with few exceptions was organized into pairs. Mutual preening and, in at least two instances changing of partners, took place as on the previous day. I also saw several cases of one bird of a pair apparently threatening a neighbouring single bird, which in each case flew off. For example on one occasion there were two adjacent pairs AB and CD. A flew off and B flew to the opposite side of CD, so that the arrangement was CD—B. D then shuffled along the wire towards B with lowered head, apparently threatening. B flew off some way up the wire and D rejoined C.

At 9.30 a.m. on November 13th 93 birds were on the wires, but a rather higher proportion were sitting singly. Mutual preening was taking place as before, but on several occasions birds were seen to land on the wires and remain without moving into pairs.

No birds were seen on the wires on subsequent visits, though at 4.10 p.m. on November 15th a flock of approximately 100 birds was seen near Ardross flying in the direction of the gorge.

Several pairs of Jackdaws are known to nest in the vicinity of the gorge in summer.

The weather throughout the period was an exceptionally long period of high pressure with clear weather, zero cloud and light ground frosts at night, giving a marked diurnal variation in temperature as well as warm sunny days. ROBERT A. HINDE.

COURTSHIP DISPLAY OF STARLING.

IN connexion with Mr. D. J. May's note under this heading (*antea*, p. 48), the following may be of interest.

On April 27th, 1947, at Dunstable, Bedfordshire, I was watching two Starlings (*Sturnus v. vulgaris*) on a lawn behaving in a precisely similar manner to that described by Mr. May. Suddenly, however, the singing bird, which was at that moment within a foot of the other, crouched low on the ground with its wide open bill pointing upwards and its wings half spread. The other Starling went up to the posturing bird and lightly pecked its back. After a second's pause, they resumed their previous actions for a few minutes more, when they again repeated the performance described above.

B. H. ALABASTER.

BREEDING HABITS OF SHETLAND STARLING.

FOR A number of years I have paid special attention to the habits of the Shetland Starling (*Sturnus vulgaris zetlandicus*), especially in the breeding-season. As *The Handbook of British Birds* states with reference to *Sturnus v. vulgaris* that incubation begins when the clutch is complete it may be of interest to record that in my experience the Shetland bird always starts "sitting hard" as soon as the fourth egg is laid and in many cases after the third. As soon as the fourth egg is laid they sit extremely close; sooner than fly off the nest they will back away into some crevice in the rocks or old buildings and can only be got away by lifting them out, if they can be reached at all. Another noteworthy characteristic of the Shetland birds, in which they seem to contrast with the ordinary Starling, is the way in which they can avoid showing themselves during laying and incubation. After hatching, the parent birds are very much in evidence, being noisy and frequent in their visits to the nest. But prior to hatching it is possible to watch a particular inlet in the cliffs where a dozen or more pairs are known to be nesting and after watching for hours to see no sign of any birds the whole time; one might come away supposing there was not a Starling within miles.

DONALD CROSS.

ALTERNATIVE CALL OF CHAFFINCH.

It may be of interest to record that I heard a cock Chaffinch (*Fringilla cœlebs gengleri*) using the alternative call, "tswee-e-e," repeatedly on June 15th, 1947, and several subsequent days at Denton, near Grantham, Lincolnshire. The alternative call followed the more usual "chwink" note, "chwink, chwink, tswee-e-e," and was markedly ventriloquial. The cock was one of a number breeding along a lane some 600 yards long and fringed with larches and Scots pines. None of the other Chaffinches there has ever been heard to use this alternative call, which *The Handbook* describes as "infrequent in Brit. Is., . . . often, but not invariably, associated with conifers," and used "almost exclusively spring, but occasionally June." P. P. L. Stevenson.

RUSTIC BUNTINGS IN SUSSEX.

In the afternoon of February 5th, 1947, I was watching through binoculars a few Greenfinches (*Chloris ch. chloris*) and Siskins (*Carduelis spinus*) feeding among the marram grass on a piece of rough ground near the shore on Pett Level, when two small birds came into my field of view that I was able to recognize as Rustic Buntings (*Emberiza rustica*). I had them under observation for half an hour at close range. They had, I think, been in the locality for some time, for I had had several reports previously of two birds that I had concluded must have been Rustic Buntings, and my son had reported having seen them on the previous evening on another piece of rough ground. They were I concluded a pair: the male, about the same size or a trifle smaller than a Reed-Bunting (*E. s. schœniclus*), had the forehead and crown dark brown with a small white spot on the nape, back of neck, back and tail-coverts chestnut; a very distinct white eyestripe, sides of head brown, throat and belly white with a very conspicuous rusty brown bar across the chest and dark brown spots on the flanks, outer tail-feathers white; bill dark brown, legs reddish brown. The supposed female was the same but duller and the white spot on the nape absent or not noticed. R. Cooke.

UNUSUAL FLOCK OF PIED WAGTAILS.

On January 1st, 1947, in Surrey, I began folding on roots—kale and swedes—150 sheep and almost immediately I noticed an unusual number of Pied Wagtails (*Motacilla alba yarrellii*). I counted them many times and always there were 150 to 175 and they were practically always in one large flock. Almost the whole of their time was spent in with the sheep or on the adjoining twelve acres of roots or cleared ground.

They remained throughout the winter until the roots were finished at the end of March, with the exception of a few days in February which were very warm. At that time the number dwindled to a mere twenty, but on the return of colder weather they were back immediately.

A few Meadow-Pipits (*Anthus pratensis*) kept company with them during their stay.

In the winter of 1946-47 I have had sheep kept under exactly similar conditions and have not seen more than two wagtails at any time. During the five winters previous to 1946 there have generally been between ten and twenty present. L. G. WELLER.

[In our experience such a large flock of Pied Wagtails as our correspondent describes is quite exceptional except at roosts.—EDS.]

COURTSHIP FEEDING OF IRISH COAL-TIT.

COURTSHIP feeding similar to that described by T. A. W. Davis (*antea* p. 177) is not, in my experience, at all infrequent in the Irish Coal-Tit (*Parus ater hibernicus*). Moreover, during the incubation period when the female comes off to feed, courtship-feeding of the female, whose wings are half-spread and shivered, is frequent.

I have records of an adult bird which gave, or made the gesture of giving food to another adult, previous to which both shivered their wings, and of two adults (colour-marked) where the male flew to the female and gave, or made the gesture of giving food to the female; the latter stretched forward to receive the food but did not shiver the wings. Both occurrences took place in early May.

If both birds of a pair arrive with food simultaneously near the nest-site they habitually indulge in violent shivering of the wings and may even accompany this action by the call-note or the male by hardly audible sub-song. There is, of course, no courtship feeding in such instances. ROBERT F. RUTTLEDGE.

COURTSHIP FEEDING OF WILLOW-TIT.

WITH reference to recent notes on this subject (*antea*, p. 51 and Vol. xxxix, p. 245), I observed a similar performance on May 6th, 1947, in a birch wood near Altrincham, Cheshire. The cock (?) Willow-Tit (*Parus atricapillus kleinschmidti*) was seen on two occasions to pass insect food, collected from the foliage of the trees, to the hen (?), who accepted it with shivering wings and continuous plaintive calling (the "eez-ezz-eez" of *The Handbook*).

JOHN SOUTHERN.

"INJURY-FEIGNING" OF SONG-THRUSH.

"INJURY-FEIGNING" by the British Song-Thrush (*Turdus e. ericetorum*) is rarely recorded. On April 22nd, 1940, the cries of some nestlings of this species, which I was ringing, attracted a parent bird, which landed near by and then stumbled along dragging its half-open wings in the usual "injury-feigning" manner. Finally the bird stopped and stood watching me, calling loudly.

E. M. CAWKELL.

CONTINENTAL HEDGE-SPARROW IN LINCOLNSHIRE.

THE Continental race of the Hedge-Sparrow (*Prunella modularis modularis*) has been recorded by specimens from Fair Isle, Shetlands, Outer Hebrides, Forth area, Yorkshire, Norfolk and Kent. It has been thought desirable to include Lincolnshire in this list for I have a male obtained on December 6th, and a female on December 7th, 1935, both from Northcotes; and a third specimen, a male, from the same locality on February 14th, 1938. JAMES M. HARRISON.

ALPINE SWIFT IN KENT.

AT 3.50 p.m. (G.M.T.) on April 26th, 1947, I was walking towards Birchington along the Reculvers Sea Wall, when I saw a large powerfully built swift approaching. As soon as I picked it up with my glasses, the pure white belly, large size and white chin showed that it was, without doubt, an Alpine Swift (*Apus m. melba*).

The bird was flying west along the coast, and passed about twenty feet over my head.

I did not observe any other swifts that day. T. M. GULLICK.

BEE-EATER IN DORSET.

ON the evening of May 5th, 1947, I saw sitting on the electric wire crossing a road and orchard at Askerswell, Dorset, a bird which proved to be a Bee-eater (*Merops apiaster*). It was about the length of a Mistle-Thrush, with a longish tail and a long curved black bill, and its plumage, in certain lights, was of intensely bright colouring. It had a bib of bright yellow, surrounded by a black line. Its underparts were of metallic green, its back of bronze and yellow, and a dark green tail, with the two middle feathers longer and projecting beyond the others.

We watched it fly off swiftly many times and catch large insects which, on nearer view, proved to be humble-bees. These it usually swallowed whole in the air or on returning to its perch, but sometimes it turned the bee round a time or two, as if it found difficulty in devouring so large a beakful. We watched the bird for about two hours that evening in the orchard and on the trees round the opposite field.

Next morning, before 6 o'clock (G.M.T.) it was back on the wires again, catching humble-bees. We watched it till 8 a.m., when it flew off in a N.E. direction. We have not seen it since. Friends who were with us in the evening saw the bird disgorge the remains of the bees a short time after swallowing them.

It seems deserving of note that of six local people, hastily called to see this rare bird, two had previously known bee-eaters abroad, in two different parts of the world. CYRIL E. MARTIN.

SHORT-EARED OWL TAKING REDSHANK.

ON March 16th, 1947, at Pagham Harbour, Sussex, I flushed a Short-eared Owl (*Asio f. flammeus*) from the still warm body of a Redshank (*Tringa totanus*) which it had partially eaten. The Redshank is not recorded in the sections on food in *The Handbook* or Kirkman and Jourdain's *British Birds*. JOHN REYNOLDS.

GURGLING NOTE OF TAWNY OWL.

I HAVE frequently heard the gurgling notes of the Tawny Owl (*Strix aluco sylvatica*), referred to by R. Harrison (*antea*, p. 181) and *The*

Handbook (Vol. ii, p. 339), at Hillfield, near Cheddar, Somerset. This trill was used by one of a pair of owls from its day-roost, and most often just before flying out in the evening twilight ; it was not answered by the other bird of the pair. I have recorded it from June until October. STANLEY LEWIS.

HOBBY CATCHING GREEN WOODPECKERS.

ON August 23rd, 1940, I was attracted by the terror stricken screams of a Green Woodpecker (*Picus viridis pluvius*), a hundred and fifty yards from where I was standing, near the Bagshot road, two miles from Bracknell, Berkshire. I had heard similar screeching several times during the preceding two weeks, and was most anxious to discover its cause. On my running to the spot a Hobby (*Falco s. subbuteo*) rose out of the heather ten paces ahead, and a badly frightened Green Woodpecker flew away chuckling to itself, and leaving a couple of feathers floating in the air.

Now there was ample time for the Hobby to kill its victim before my arrival, and on previous occasions when I had visited the source of similar disturbances, I had been unable to find any signs of a kill. It therefore seems not improbable that the Hobby (possibly the same one), was attacking Green Woodpeckers out of sheer devilment. I should be interested to hear whether anything comparable has been witnessed by other readers of *British Birds*.

BRIAN CLIFFORD.

BLACK KITE IN NORTHUMBERLAND.

ON May 14th, 1947, a Black Kite (*Milvus m. migrans*) was obtained by Mr. H. Hogg at West Kyloe, Beal, Northumberland, and received in the flesh in a fairly advanced stage of decomposition on May 20th.

It is a male and appears to be in first summer plumage. The juvenile wing coverts are very faded and abraded and only one outer tail feather is retained, and this, together with the remainder of the tail feathers, is very worn. The fork is not nearly so pronounced as in another English specimen, an adult male caught in a trap at Alnwick Park, Northumberland, on May 11th, 1866. Strangely enough both birds were obtained within a few miles of each other. The gonads were well developed, measuring 28.0 mm. by 9.0 mm., and appeared to be in breeding condition. The stomach contained two earthworms.

Measurements :—

Wing	446.0 mm.
Tarsus	62.0 mm.
Bill from cere	24.0 mm.
Tail, central feathers	230.0 mm.
,, outermost ,, ...	260.0 mm.
Depth of fork	18.0 mm.

Both specimens are in the Hancock Museum, Newcastle-upon-Tyne. This is the fifth British record. S. E. COOK.

OSPREY TAKING LAPWING IN CARNARVONSHIRE.

On June 7th, 1947, I noticed a large buzzard-like bird, pursued by nearly a dozen Sheld-Ducks, flying at about 50 feet above a salt-marsh in the Glaslyn estuary near Portmadoc, North Wales. Examination through binoculars revealed the white underparts and white head with the dark lateral band characteristic of the Osprey (*Pandion h. haliætus*). As I watched the bird it dropped to the ground and rose with prey which I was able to identify as a half-grown Lapwing (*Vanellus vanellus*).

With this it began to soar, rapidly gaining height, and finally disappeared in the direction of Harlech, Merionethshire.

The Osprey is rarely recorded in West Wales and the Lapwing does not figure in the food listed in *The Handbook*.

CHRISTOPHER M. SWAINE.

PINTAIL NESTING IN OUTER HEBRIDES.

On May 16th, 1946, on South Uist, Outer Hebrides, I found on an island in a loch a duck's nest containing nine eggs. It was situated in a small depression on the highest point of the island (about 15 ft.) about 10 yards from the water, amongst short bluebells, and was quite open to the sky and easily visible. Unfortunately the duck was absent, and the eggs were completely covered with down, of which there was a liberal quantity, almost clean of vegetable matter, though a few bits of dry bracken were present. The eggs, which had been incubated about a week, were of a uniform bluish tint, but with a few dark blobs running into the main colour on some of them. In size they were very variable, the largest almost Mallard size, the smallest scarcely bigger than Teal, but most of them were about the size and shape of Shoveler's eggs. From the down and feathers it appeared to me that the nest was that of a Pintail (*Anas a. acuta*).

The measurements of the eggs in millimetres were : 49.5 × 37.6, 51.7 × 38.0, 54.2 × 38.3, 54.9 × 38.3, 54.9 × 39.7, 55.3 × 39.7, 56.9 × 39.0, 57.3 × 39.2, 57.7 × 39.3. The average of 54.7 × 38.8 mm. is close to that given for the Pintail in *The Handbook*, namely 54.2 × 37.44 mm. The smallest egg is slightly below the *Handbook* minimum of 51.2 mm. in length, but is so much smaller than the average for the clutch that it might almost be considered abnormal.

I sent a typical egg with down and nest feathers to Mr. B. W. Tucker and they were submitted by him to Mr. G. H. Lings, who has made a special study of the down and nest feathers of ducks. Mr. Lings kindly reported that he had compared them with his own self-taken material and " I have no hesitation in saying that the nest is that of a Pintail. I can find exact copies of every feather among my own clutches ; the egg is exactly similar, except that mine are less blue (probably owing to fading). The difference in size of the eggs in the same clutch is also typical and all the clutches I have seen *in situ* have been very much in the open and easily seen."

Broods of Pintail were recorded in South Uist in 1902 (Harvie-Brown, *Ann. Soc. Nat. Hist.*, 1902, pp. 209-210), but there do not appear to have been any fully authenticated records since then, though *The Handbook* states that the species has possibly bred in other years. J. A. SWEETLOVE.

STELLER'S EIDERS IN ORKNEY.

ON JANUARY 5th, 1947, after a 10 days' easterly gale in the Orkneys, I went out in my motor-boat from Kirkwall to see what birds had been driven in by the storm. Near the island of Gairsay I had good views of two Steller's Eiders (*Polysticta stelleri*). I saw these birds again on two subsequent dates, January 12th and 19th. On the last occasion I found the birds pretty tame and I was able to stop the boat and watch them for 15 minutes before they flew. One of them appeared to be simply black and white, from which I presume it to have been immature. The other showed a good deal of colour. The green nape patch stood out well on the white head and the black ring round the neck could be well seen. The orange-brown of the under-parts was noticeable in flight. The bill of the first bird was a dull blue colour, that of the other showed a blue colour with a lighter nail. When they flew the head looked absurdly small for the body and the neck long and thin; the white fore-part of the wing showed up well. The speculum on one seemed to show mostly white, but on the other the speculum showed a good deal of purple with white in front and behind. The appearance was very distinctive and the birds could be picked out as strangers from a good distance. GEORGE ARTHUR.

NON-BREEDING FULMAR WITH BROOD SPOT.

AN adult female Fulmar (*Fulmaris g. glacialis*) was sent to us on June 26th, 1947, by Mr. Thomas Adam, Factor to the Sutherland Estates, which was shot out of a party of five or six, which have begun this year to frequent and sit on the roof of Dunrobin Castle, Golspie, Sutherland, the seat of the Duke of Sutherland. They have not been seen here before, though they breed at other places a few miles away.

The bird had a single large brood spot, but upon dissection, the oviduct was found to be undeveloped ; there was one egg of 2 mm. diameter in the ovary, and the rest were below 1 mm. It would appear that the development of the brood spot in the Fulmar is an accompaniment of preliminary breeding behaviour (doubtless under pituitary control), and not necessarily an accompaniment or consequence of development of the gonad and oviduct. It is possible that the behaviour of lengthy sitting at stations in the pre-breeding stage of visitation by Fulmars is linked with the development of the brood spot and its surface sensitivity. If this were so, the brood spot would play a part in the behaviour of the breeding cycle distinct from its direct function of incubation.

FRANK DARLING AND AVERIL MORLEY.

WOOD-PIGEON "COOING" WHILE ON THE GROUND.

To THE instance given (*antea*, Vol. xxxiv, p. 263) of a Wood-Pigeon (*Columba p. palumbus*) "cooing" while on the ground, a habit which Naumann considered of rare occurrence, I can now add a further record.

On May 19th, 1947, a Wood-Pigeon alighted on the shore of Lough Carra, Co. Mayo, with the obvious intention of drinking. A second bird almost immediately alighted beside it, some display ensued and the first bird uttered the courtship "coo"; the second bird then flew away. The original bird drank and after doing so walked along the shore but halted once and stood "cooing," repeating the phrase twice before walking on for a few feet ; it then flew away.

ROBERT F. RUTTLEDGE.

NOTES OF STOCK-DOVE.

The *Handbook* does not mention the note made by the Stock-Dove (*Columba œnas*) when bowing to the female in sexual display. This is a very soft, low-pitched, droning coo, difficult to express in writing, but could perhaps be written as "oōh oōh" or "coo-ōō oo-ōō." Two coos are distinct, but I can never decide whether each should best be expressed by two syllables or one. These notes can be heard clearly at a distance of a few yards, but even then sound oddly faint and far away and it is difficult at first not to believe that the sound has come from some bird at a distance. This note is quite different from the usually known coo—the "rather deep gruff "oōō-woo" of *The Handbook*, which is uttered by the male as a nesting-call and appears to be used also as a song or call-note. I say "appears to be used" because the fact that the Wood-Pigeon (*Columba palumbus*) uses utterly dissimilar notes in these circumstances inclines me to believe that in such species as the Stock-Dove, Rock-Dove (*Columba livia*) and Domestic Collared Dove, in all of which I cannot with any certainty distinguish the "song" from the nesting call, there is nevertheless an appreciable difference to the birds themselves.

DEREK GOODWIN.

STOCK-DOVE ALIGHTING ON WATER.

A FURTHER instance of the Stock-Dove (*Columba œnas*) alighting on water may be of interest in view of the fact that this habit has only been recorded on three previous occasions (*antea*, pp. 119, 187; Vol. xxix, p. 217).

On May 24th, 1947, in Osterley Park, Middlesex, I saw a Stock-Dove fly from a belt of trees and alight in the centre of a large pond ; it stayed there for a few seconds before flying back to the trees. A few minutes later another, or the same Stock-Dove repeated the performance.

C. A. WHITE.

KENTISH PLOVER IN GLOUCESTERSHIRE.

AT Severn Beach on May 4th, 1947, I obtained excellent views of a male Kentish Plover (*Leucopolius a. alexandrinus*) in company with a large mixed gathering of some 2,000 waders—chiefly Dunlin

(*Calidris alpina*), but with them a few Turnstones (*Arenaria i. interpres*), 23 Knots (*Calidris c. canutus*), 3 Sanderlings (*Crocethia alba*) and about 50 Ringed Plover (*Charadrius h. hiaticula*).

The bird, first seen on the mud with half-a-dozen Ringed Plover at 30 yards' range, at once attracted attention by its very quick running between the customary pauses, and by its paler and rather smaller appearance compared with that of its companions. Subsequent telescopic views clearly showed, amongst other details, the wholly black bill, the pale rufous crown, the incomplete collar—amounting to no more than narrow black patches on the sides of the neck—and a small black mark separating the white forehead from the rufous crown. The legs looked dark, but owing to mud staining their true colour could not at that point be determined. While thus under observation the bird made a short flight alone over the water, uttering a low note corresponding closely to the " wit-wit-wit " call given in *The Handbook*. Later, at high tide, the entire flock foregathered on a shingle bank, and I then had further opportunities of watching the bird and was able to see distinctly the greyish-black colour of the legs. It was still present on the following day, when Messrs. A. C. Leach and W. R. Taylor obtained extremely near views and noted all diagnostic characters. Both observers report that the bird was again in close company with the main flock and that it could be picked out with ease by the rufous crown alone.

This, apparently, is the first recorded occurrence for the county.

H. H. DAVIS.

SABINE'S GULL IN NORTHUMBERLAND.

ON September 17th, 1946, I had a favourable opportunity of identifying an adult Sabine's Gull (*Xema sabini*) in winter plumage on the Links, Holy Island. My attention was drawn to this small gull which was in a crouching position on the short grass. It allowed an approach to within three yards when the very dark colour of the hood—it appeared almost black—was distinctly noticeable together with the white band on the forehead. The bill appeared to be very dark brown with a lighter tip. On a nearer approach it took flight when the legs and feet appeared to be fairly dark. The all white forked tail and the black and white primaries were distinctly seen. It again settled as before in a crouching position and appeared to be exhausted. I walked up to within four feet with the intention of picking it up, but it again took flight and the strong westerly gale carried it some distance away behind the sandhills out of sight. A strong westerly gale had been blowing for two days.

S. E. COOK.

HERRING-GULLS NESTING ON BUILDINGS.

AS THERE are only four isolated records of the Herring-Gull (*Larus a. argentatus*) nesting on buildings in the British Isles (one in *The Handbook* ; *antea*, Vol. xxxvii, p. 120, Vol. xxxviii, p. 120 ; *Hastings and E. Sussex Nat.*, 1946, p. 25), the following may be of interest.

In early June, 1945, I gained access to the further portion of Brighton West Pier, Sussex, which had been separated from the land in 1941 as a defence measure. I found at least 20 nests on the roofs of the buildings, under the seats and one (almost entirely composed of kapok) on the open deck boards. All the eggs were robbed by boys.

From three independent and reliable sources I have since learned that about 30 nests were also found on Brighton Palace Pier in 1945 ; again all were robbed.

It is possible that breeding may have occurred in other years between 1941 and 1945. As both piers had been repaired and opened to the public in 1946 there is no longer any likelihood of breeding there. JEFFERY H. BOSWALL.

LETTERS.

GAIT OF YELLOW BUNTING.

To the Editors of BRITISH BIRDS.

SIRS,—When recording an observation of Corn-Buntings (*Emberiza calandra*) running (*antea*, Vol. xxxix, p. 53) and noting that this gait was known in several other buntings I ended with the query, " Is it possible that all buntings run when on really smooth ground like a road surface?" My doubt was largely due to the fact that this gait did not appear to have been recorded in the Yellowhammer (*E. c. citrinella*), the commonest of all our buntings. It was with much interest therefore that I read the following passage in *Jottings of a Naturalist*, 1912, pp. 17-18, by the late J. Whitaker :—

"You may also see the cock Yellow-Hammer when he is courting run round the hen ; he does run, and runs fast.

One day I was driving near Bilsthorpe, when on the high road I saw a long small bird run across about 40 yards off. I took it for a Wagtail, but on getting nearer I saw it was a cock Yellow Bunting. He started and ran along the road side by the edge of the grass for ten or twelve yards, then flew over the hedge. I had never seen a bird of this species do such a long and fast run before." W. B. ALEXANDER.

SUN-BATHING BY BIRDS.

To the Editors of BRITISH BIRDS.

SIRS,—In the report compiled by John Gibb on "Sun-bathing by birds" (*antea*, pp. 172-174) reference is made to the possible connection between irradiation of the skin and vitamin D production.

It was shown by Hsing-Ch'uan Hou (*Chinese Journal of Physiology*, 1928, Vol. ii, pp. 345-380) that the preen glands (uropygial glands) of domestic fowls, ducks, geese and pigeons contain cholesterol ; it may now be surmised that the preen oil also contains other related sterols from which, it has since been discovered, the D vitamins are in fact produced by irradiation. The same may be generally true of birds possessing preen glands. Experiments showed that domestic chicks fed on a vitamin-D-deficient diet, and shielded by double glass windows from ultra-violet light, soon developed rickets ; but when the same chicks were then irradiated with a mercury-vapour lamp their condition rapidly improved. Other chicks fed on the same diet, which had had their preen glands removed before the experiment, were scarcely if at all benefitted by the ultra-violet treatment.

The inference drawn is that preening the feathers serves as a source (usually not the only source) of vitamin D. It may be added that direct irradiation of the skin, which in ourselves provides vitamin D3, is usually impossible in both birds and mammals because of their thick coats. As is well known, both birds of prey and carnivorous mammals feed pieces of skin complete with fur or feathers to their young, a practice successfully followed nowadays in many zoos to avert the danger of rickets. V. C. WYNNE-EDWARDS.

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NOTES ON SOME BIRDS OF MORECAMBE BAY†

BY

J. A. G. BARNES.

IN *The Birds of Lakeland* (*Transactions of Carlisle Nat. Hist. Soc.* 1943) the editor writes as follows of the Furness and Westmorland coast of Morecambe Bay : " Unlike the Solway, these shores have never been regularly watched day by day, and many rare waders and other birds no doubt pass unnoticed." Indeed the dearth of published records of certain species between the Solway and South Lancashire is liable to give a misleading picture of their migration routes. For the last five years I have been able to keep a fairly regular, though not quite daily, watch on the Kent estuary, Westmorland, with occasional visits to other parts of Morecambe Bay, and my notes show that several species are much more frequent or numerous than the available literature would suggest.

Space does not permit details of identification for all the occurrences mentioned below, but only certainties are included. Most of the birds recorded were seen on more than one occasion, and those indicated by initials were also seen by H. Chawner or J. C. S. Ellis. If no locality is mentioned the birds were seen on the Kent estuary within three miles of Arnside. The status of the species as previously known is summarized from *Birds of Lakeland* (*B. of L.*). "Macpherson" refers to *The Vertebrate Fauna of Lakeland* by the Rev. H. A. Macpherson (1892).

HOODED CROW (*Corvus c. cornix*). "Only some half dozen occurrences during the last 30 years in the South Westmorland valleys." *B. of L.* Two foraged on the estuary with Carrion Crows from December 26th, 1944, to March 13th, 1945 (H.C.).

GREY LAG GOOSE (*Anser a. anser*). The recent increase noted in *B. of L.* has been maintained. The largest number I have seen together was 660 (±20) on November 9th, 1944. Numbers were smaller next winter, with a maximum count of 335 (±10) on February 10th, 1946, but there were between 500 and 550 throughout December, 1946.

SHELD-DUCK (*Tadorna tadorna*). *B. of L.* states that it is "a common and increasing nesting species, present at all times on most parts of the coast." But on Morecambe Bay a striking feature is the almost complete disappearance of the birds from the end of July to the middle of September. Two or three pairs may remain through August with half-grown young, but from the second week of September there is a steady increase until January, when I have counted over a thousand from one point. They are seen in pairs from February onwards and still number hundreds in June. If the late summer exodus means that the winter and summer populations are composed of different birds, it is curious that there is so little indication of movement in spring.*

---

†Since this paper was submitted the Carlisle N.H.S. have published a supplement to *Birds of Lakeland*, and some of the occurences mentioned below are included in it.

"Up-ending" is a regular mode of feeding at certain states of the tide. On June 19th, 1945, I came unexpectedly upon a pair of Sheld-Duck with 14 small ducklings on the Kent. The female thrashed along the water with her wings, then flew over an embankment and gave an effective "injury-feigning" performance on a sand-bank for about a minute, crouching low and beating the ground with both wings. *The Handbook* says that "injury-feigning" has been "occasionally recorded."

GADWALL (*Anas strepera*). "Although it does at times occur in Morecambe Bay the Gadwall is still decidedly rare in Westmorland and North Lancashire": *B. of L.* In recent years it has occurred fairly regularly on Leighton Moss, a piece of fresh water a mile from Morecambe Bay, but I have only one record for the estuary: two females or immatures from October 8th to 12th, 1946. They showed the white specula clearly when wing-flapping.

LONG-TAILED DUCK (*Clangula hyemalis*). *B. of L.* says the only recent record is a young bird in December, 1934; Macpherson mentions two occurrences. An immature drake at low tide, April 3rd, 1944; an adult female on a high tide, January 18th, 1946 (H.C.), and an adult female at Morecambe, January 4th, 1944, all made only brief appearances.

SHAG (*Phalacrocorax a. aristotelis*). "A scarce visitor to the coast of Lakeland": *B. of L.* An adult, apparently oiled, stayed from October 12th to November 1st, 1943 (H.C.). It fed voraciously and seemed to recover completely. One immature came up on the tide, November 30th, 1944.

SLAVONIAN GREBE (*Podiceps auritus*). *B. of L.* says it is a "rather scarce winter-visitor" to the whole area and gives an inland record near Arnside, but none for Morecambe Bay. I had a good view of one on November 2nd and 8th, 1945, and noted "striking white on cheeks reaching up to and behind the eye; straight, thickish bill." One seen further down the estuary on December 8th may have been the same bird.

BLACK-TAILED GODWIT (*Limosa l. limosa*). "On the southern estuaries . . . it has remained rare or unnoticed until the last few years": *B. of L.* After the spring occurrences of 13 and one in 1942 and 1943 mentioned in *B. of L.*, I have only seen one, an adult, still ruddy, on September 10th, 1945 (J.C.S.E.).

---

*Since writing the above notes I have seen a summary of a paper by Hoogerheide and Kraak (*Ardea*, 31, pp. 1-19, 1942) in which they give evidence to support their conclusion that the adult Sheld-Ducks of all north-west Europe migrate in July or August towards the Heligoland Bight, where they accomplish their moult. This would fully explain the emigration noted above. I have, however, seen a pair of adult Sheld-Duck flying strongly in the second week of August.

CURLEW-SANDPIPER (*Calidris testacea*). *B. of L.* has no Morecambe Bay records since the two near Arnside given by Macpherson. A party of five was present from September 12th to 17th, 1943 (H.C.). In 1945 there was one among Dunlins from September 10th to 20th (H.C.), and two together on the 13th (J.C.S.E.). 1946 was an exceptional year : two at Morecambe, September 4th, one on the Kent estuary on the 5th, four on the 6th, eight on the 7th (J.C.S.E.). On September 12th there were 13 together, and numbers dwindled gradually till the last bird was seen on October 14th.

LITTLE STINT (*Calidris minuta*). Macpherson records three shot near Arnside in 1876, but *B. of L.* gives no further Morecambe Bay records except the three adults seen on October 13th, 1942. Since then I have noted the following occurrences near Arnside : two in summer plumage, May 28th, 1943; two juveniles, September 7th to 11th, 1943 ; one, September 16th, 1944 ; one, September 10th (J.C.S.E.) and another, October 14th, 1945. Numbers in September 1946 were exceptional : four on the 6th, seven on the 7th (J.C.S.E.), 16 on the 15th, after several days of westerly gales. The last total included two adults. One or two were seen until October 14th.

RUFF (*Philomachus pugnax*). *B. of L.* reports that "the autumn passage is evident on the North Lancashire coast." My only estuary notes are : two, September 7th, 1944 (J.C.S.E.); one reeve, April 10th to 22nd, 1946 ; one, September 15th, 1946.

SPOTTED REDSHANK (*Tringa erythropus*). *B. of L.* has one Morecambe Bay record, September, 1935, and Macpherson gives one inland occurrence for Westmorland. The last three autumns have each provided one or more : one juvenile, September 16th, 1944 (J.C.S.E.) ; two juveniles, September 12th and 13th, 1945 (J.C.S.E.) ; an adult in summer plumage, July 7th, 1946 (an unusual date, but I had excellent views of the bird in flight and at rest and heard its characteristic "tuwheet") ; an adult in winter plumage, August 30th (H.C.) and September 1st, 1946 ; and a juvenile on September 30th, 1946. All these birds were seen in flight as well as on the ground and showed the distinctive dark wing.

GREENSHANK (*Tringa nebularia*). "A regular visitor on autumn passage. As a winter visitor and on spring passage the Greenshank is rare" : *B. of L.* My earliest date for autumn migrants is July 7th (1946) when two arrived and stayed for some days. Up to a dozen are present in August and September and a few usually linger into the winter, e.g. one seen daily till January 24th, 1945, when the estuary banks were frozen over (H.C.) ; three on December 26th, 1945, three on December 1st, 1946, and one till the 31st. A single bird at Arnside for a few hours on April 26th, 1945, appears to be the first spring record for the southern estuaries of Lakeland.

BLACK TERN (*Chlidonias n. niger*). "An irregular spring and autumn passage migrant, which has appeared more often in recent times than formerly" : *B. of L.* After the 11 in August, 1942, mentioned in *B. of L.*, I have noted the following occurrences : one

September 17th, 1943 ; from two to five, August 29th to September 7th (J.C.S.E.), and two, September 26th to October 3rd, 1944 ; one, September 8th, 1945 (J.C.S.E.). Nearly all these were juveniles or adults in winter plumage. I have no spring records for the estuary, though single birds have appeared on Leighton Moss in May, 1945 and 1946.

COMMON TERN (*Sterna h. hirundo*). Although I have no proof of successful breeding since the nest on the Kent estuary in 1939 mentioned in *B. of L.*, a pair has appeared in the same place each summer. In 1945 they were present till July 17th, and in 1946 they screamed and dived at me on a likely nesting bank on May 24th, but were not seen after a high tide covered the bank on June 2nd. These persistent attempts suggest that one or both of the 1939 pair may be returning each year.

LITTLE GULL (*Larus minutus*). "Little Gulls have occurred, though only rarely, on the southern estuaries" : *B. of L.* An immature bird remained with Black-headed Gulls near Arnside railway bridge from March 24th to 30th, 1946 (H.C. and others). The dark wing-band was conspicuous during the bird's tern-like flights and clearly visible when it was at rest. The subterminal tail band remained only on the outer feathers ; the bill was black, legs flesh-coloured. Mr. Blezard tells me there is one previous record for Westmorland.

LESSER BLACK-BACKED GULL (*Larus fuscus graellsii*). A paper in *British Birds*, Volume xxxviii, pp. 342 to 346, drew attention to the numbers of this species at Morecambe in the winters 1943-4 and 1944-5. The following counts show that this winter "colony" persists. December 27th, 1945 : 76 ; February 19th, 1946 : 83 at Morecambe and 24 on the Lune at Lancaster ; December 3rd, 1946: 118 at Morecambe ; December 27th : 70. I never saw more than three in the easily recognizable second-winter plumage, but there was a fair number of "dirty-looking" birds probably in their third or fourth winter. There have been four to six on the Kent estuary each winter, and the spring immigration again began in the first week of March. A group of 31 one-year-olds at Morecambe on June 18th, 1945, and 12 or more on June 11th, 1946, recall F. W. Holder's report of a large immigration of immatures at Southport in early June.

GREAT BLACK-BACKED GULL (*Larus marinus*). *B. of L.* says that they are usually solitary or in pairs along the Lakeland coast in winter, but gather together in the southern estuaries. Numbers have increased since the 30 in February, 1943, mentioned in *B. of L.* ; e.g., 66 on October 5th, 1945, 56 on November 14th, 1946. The first autumn arrivals include a large proportion of immatures (e.g., about half of a party of 36 on August 5th, 1945), but most of them leave before winter (e.g., only six immatures with 36 adults, February 13th, 1945, three with 26 adults, January 8th, 1947).

SOME CASES OF ABNORMAL FLIGHT OF BIRDS

BY

ARTHUR WHITAKER.

Several instances of abnormal flight in birds, which I have observed, open up an interesting subject for speculation. The collection of further data may throw light upon the reasons. Probably in many cases the effect of air currents, pockets and lifts may be assumed to be one of the chief causes. My interest in the subject was particularly aroused by certain observations made on October 12th, 1946. At about 1.30 p.m. on that day some hundreds of Black-headed Gulls (*Larus r. ridibundus*) were feeding on a freshly ploughed stubble field in the valley between Painswick and Longridge, Gloucestershire. I was working in my garden at Longridge, overlooking this field, when a flock of about 70 Rooks (*Corvus f. frugilegus*) came over at a considerable altitude crossing the valley from east to west. When nearly overhead they saw the gulls and were obviously attracted to the feeding ground. Instead of flying down in the normal way they began to mill round in what appeared to be a rather aimless manner, emitting a chorus of very short, staccato calls, which sounded rather peevish and were slightly different from any note I have heard Rooks give before. As I stood watching, interested at this unusual behaviour, I was astonished, after about a minute, to see one of the birds suddenly descend quite vertically and head first. The beak was pointing straight down, the wings about half closed and the bird turned clockwise in a spiral, making three or four complete revolutions during the course of the descent. The performance was a perfect duplication of what I believe aviators call a " leaf-spin." The bird did not flatten out until it was within about 20 feet of the ground after dropping from a height which I estimated at 600-700 feet.

I was astonished at this breath-taking exhibition of the bird's flying capabilities and even more amazed when its example was followed in quick succession by all the other Rooks in the flock. Each adopted exactly the same mode of descent.

About 15 minutes later a smaller party of some 30 Rooks and Jackdaws (*Corvus monedula spermologus*), in about equal numbers, came over, and the whole incident was repeated in every detail, both Rooks and Jackdaws diving vertically in the same spectacular manner after a short period of flying round at one altitude in apparent hesitation.

Still later several Black-headed Gulls came over and they each descended in three or four zigzag dives at an angle of about 80 degrees, with a check and apparent half-turn, to reverse direction, at each bend of the zigzag, the exact movement at each break in the line of descent being too quick for me to observe. The weather at the time was bright and sunny and there was little apparent wind. I can only conjecture that this phenomenal behaviour of the birds must have been induced by a remarkably pronounced upward current of air rising from the valley strong enough to prevent them from making a normal descent.

In over fifty years of bird watching I have never previously seen any similar exhibition of flying. I am of course, acquainted with the aerial acrobatics and dives performed by Rooks and Jackdaws, especially in autumn, but I have never known these performances compare in any way with those now described, either for the distance the birds dropped, the spinning which was a feature of the dives, or the deliberate purposefulness of the action. What I have seen before always gave me the impression of antics dictated and governed by the emotional condition and excitement of the birds, whereas in the present case it seems clear that the dominant factor influencing them was the special atmospheric conditions. This suggests the probability that the behaviour was a form of stunt flying which some of the younger birds, at least, had never had occasion to attempt before. If so it may explain the initial hesitation. When the first bird set an example of how to overcome the difficulty the rest were not slow to copy.

The corkscrew twist of the diving birds was exactly like that of a stunting plane when making a similar vertical descent. I am told this spin is quite essential if the aviator is to keep control of his machine and that without it the back of the plane would probably be broken, apart from its being impossible for the pilot to flatten out at the end of the dive. Pilots are taught this rule, which has been learnt by bitter experience. Is the necessity second nature to a bird owing to its being a *living* flying machine mentally and physically conscious of the strains and stresses to which it is subjecting itself ? Alternatively can it perhaps be purely instinctive even on the part of young birds who have never previously performed such a feat ?

The speculations and interest this incident aroused made me refer to my notes for details of one or two past observations I remembered recording.

On July 8th, 1944, a hot sunny day, I was in Puckham Woods, near Cheltenham, Gloucestershire, and when near the top edge of the wood, where it runs out on to the West Down at an altitude of about 900 feet, I saw a Kestrel (*Falco t. tinnunculus*) tower up in a spiral almost to cloud level. A few minutes later a hen Sparrow-Hawk (*Accipiter n. nisus*) flew across the head of the little valley quickly and at a low altitude. When it reached the middle its wing-beats suddenly ceased and it started a steep spiral glide upwards on motionless wings. It rose, like the Kestrel, to a very considerable altitude, probably not less than a thousand feet. I was naturally surprised to see two such unusual instances of towering within a few minutes in identically the same place and by two different species neither of which I had even seen rise to such an altitude before. An even greater surprise followed, however, for as I entered the wood edge I disturbed a roosting Barn Owl (*Tyto a. alba*) from an ivy-covered tree. I turned to watch as it flew towards the trees at the opposite side of the hollow, but when it came to the place where the two hawks had towered it also rose in a gentle spiral on motionless wings until, in spite of brilliant sunshine, it had attained an altitude of at least 200 feet before breaking away and dropping back again into the trees.

In this case, as in the former, it appears clear that a strong upward current of air was responsible for the unusual behaviour of these three birds of different species. What is perhaps of more interest is that here we have a case where the birds apparently found an irresistible physical desire to avail themselves of the pleasure of taking advantage of the air lift for the purpose of a "joy-glide" just as a glider pilot loves to do.

A final instance of abnormal flight on the part of a Snipe (*Capella g. gallinago*) comes under quite a different category. On May 29th, 1915, near Worsborough Reservoir near Barnsley, Yorkshire, I saw a Snipe flying in circles at an altitude of about 20 feet above some marshy ground. I watched it for some time and saw it repeatedly turn completely over and glide upside down through the air for a distance of some thirty or forty feet. During these glides the wings were motionless and partly closed and the beak was pointing upwards and forwards, and at the end of the glide the bird again turned over outwards to regain its normal flying position. The bird was quite silent during the performance, emitting neither drumming nor any vocal note. It was flying over what I believe was feeding ground only, in an area where I have never known it to nest. The only explanation I can advance is that it was an exhibition of pure excitement and pleasure and possibly partly to be attributed to the fact that a gentle, warm rain was falling at the time following a fairly prolonged drought.

[Other instances of Snipe turning belly upwards in flight are recorded in *Brit. Birds*, Vol. xxxii, pp. 51, 86 and 121.—EDS.]

NOTES ON WELSH CHOUGHS

BY

IRVINE WHITTAKER.

As the Chough (*Pyrrhocorax p. pyrrhocorax*) is one of our lesser-known species, the following observations might be of interest as furnishing corroboration of the excellent account of this species given in *The Handbook*. The notes are the result of observations extending over the past four years, at an old, disused quarry in North Wales, where a pair has nested annually since 1943, and two pairs since 1945. Both nests were in deep fissures in the perpendicular rock-face, and the same nesting-holes were appropriated each year.

Both sites were exceptionally well-placed for observation. Excellent cover was available 30 to 40 yards from the nests, whence it was possible, with the aid of field-glasses, to observe every detail and movement of the birds. Actually, however, the birds were so confiding that close cover was not necessary. On occasions, they alighted and walked about the ground not a dozen yards away from me, quite indifferent to my presence, though I stood in the open fully exposed. Other pairs were nesting at a less accessible spot only a mile or two away.

There can, I think, be little doubt that the Chough pairs for life; even when viewing a number feeding together, it is often possible to pick out the birds that are paired. Flocks disperse in late March, or early April. Two birds out of a flock of 13 which I saw in the air together on March 25th, 1946, constantly broke away to visit the projected nesting-site ; after entering the hole each time and making a short inspection, they rejoined the flock. (I might add, in this connexion, that I saw a single bird on the Little Orme on March 29th, 1946).

During courtship I have seen pairs on ledges of the rock-face stroking their bills together, and pecking each other's heads caressingly ; the males, too, constantly presented gifts of food to the females—the latter in the meantime quivering their wings like fledglings. On April 9th, 1946, I saw coition take place on a projecting rock outside the nesting-cavity, the male standing upright on the female's back for a surprisingly long time afterwards.

The young in the nest were fed by regurgitation. On the numberless occasions when I observed the parents visiting the nest, the pair arrived together, usually calling loudly ; occasionally both birds entered the nesting-hole at the same time, but more usually one remained outside near the entrance. It was very exceptional for birds to arrive singly. After feeding the young they often spent much time on the rock-face near the nest, wiping their bills and preening themselves. Almost invariably when coming to the nest they approached from a higher altitude, and dropped to the nest by a series of very characteristic U-shaped dips.

By far the commonest call I heard was the ringing *kee-ah*—with slight variants ; the softer *'chuff* was far less frequently uttered. A much more rarely used note was a quickly repeated *uk-uk-uk-uk-uk*, closely resembling the clucking of a domestic fowl. Occasionally when a bird spoke, the rich red of the inside mouth was noticeable.

The birds seemed very conservative in their choice of feeding-grounds. Certain patches of moorland were habitually frequented, while others which looked equally suitable were as persistently shunned. Insects and their larvæ obviously constituted the bulk of the food, but the more precise nature of these I was unable to determine with certainty. Several individuals amongst a party of ten which were feeding on a sheep pasture, and which I watched closely, were digging into the short-cropped vegetation with the utmost vigour.

One feature of the *adult* bird about which I have seen no previous comment, but which has often impressed me, concerns the colour of the legs. In the field, these look much less colourful on some occasions than others. I have seen birds in spring whose legs looked quite pink ; yet from other viewpoints they appeared bright red. This feature applied to every individual I examined, and was, I presume, due to the incidence of the light.

REPORT OF THE BLACK REDSTART INQUIRY FOR 1946*

BY

R. S. R. FITTER.

THROUGH the co-operation of 64 observers, it has been possible to provide evidence of the breeding of at least ten pairs of Black Redstarts (*Phœnicurus ochrurus gibraltariensis*) in England in 1946. A further 13 pairs or singing males occupied territories, but without breeding being proved. One of the valuable features of the Inquiry has been the large number of breeding records for past years which it has elicited, as a result of which the number of pairs known to have bred in each of the years 1941-45 now stands at 9, 8, 17, 14 and 10 respectively. Full details of these changes will be published in due course.

The following is a brief summary of results for 1946, by vice-counties :—

V.C. 14 *East Sussex.*

A pair bred at Pett Level (R. Cooke, A. Denby Wilkinson), and another at Winchelsea Beach (R. Cooke). A pair was present on East Cliff, Hastings (N. F. and R. G. Ticehurst), and another in St. Leonards-on-Sea (B. T. Brooker, H. A. R. Cawkell, R. N. Ticehurst, A. A. Wright), but in neither case could breeding be proved.

V.C. 15 *East Kent.*

Three pairs bred in Dover (G. E. Took), one in Folkestone (G. E. Took) and one in Ramsgate (H. G. Jeffery). A pair was seen in Margate on May 15th, but with no evidence of breeding (R. S. Beeham).

V.C. 21 *Middlesex.*

At least three pairs bred in the City of London (two pairs in the Cripplegate area and the third in the Fetter Lane area), and a fourth pair may have bred in the Temple. In addition to the Temple pair, there were six other males or pairs occupying territories, for which no proof of breeding was forthcoming. Comprehensive information regarding the London birds was provided by Mr. F. J. Holroyde, and thanks are also due to the following 41 observers : J. S. Ash, E. R. Baker, G. Beven, F. C. Bromley, W. H. Brown, J. Chappell, L. Collins, Miss M. Curtis, N. W. Cusa, C. Dolley, Miss K. Douglas-Smith, Mr. M. S. Fitter, J. Gibbon, R. W. Hale, A. G. Hancock, Mr. J. Hawkes, H. H. S. Hayward, Miss M. Henderson, P. A. D. Hollom, E. O. Höhn, R. C. Homes, Miss L. J. Johns, V. C. W. Lewis, G. C. Low, K. Lindley, H. Murray, C. P. Newcomb, E. R. Parrinder, E. G. Pedler, Mrs. Purdom, B. A. Richards, R. H. M. Ryall, R. Smith, W. G. Teagle, C. Trimble, E. H. Warmington, R. B. Warren, C. Wontner-Smith, Mrs. J. Youle, S. D. Herington.

V.C. 25 *East Suffolk.*

At Lowestoft, only seen on passage in April and October (F. C. Cook).

The organizer wishes to thank all these observers cordially for their co-operation in 1946, and hopes that they will continue to send him information in 1947, to Greyhounds, Burford, Oxford.

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*Publication of the British Trust for Ornithology.

REPORT OF THE BIRD-RINGING COMMITTEE*:

PROGRESS FOR 1946.

A. LANDSBOROUGH THOMSON, C.B., D.SC.

Chairman of the Committee.

THIS is the tenth report† issued on behalf of the Bird-Ringing Committee of the British Trust for Ornithology, continuing the earlier sequence published under the title " The *British Birds* Marking Scheme."

MANAGEMENT.

The headquarters of the scheme remain in the British Museum (Natural History), by permission of the Trustees, and rings are inscribed "BRITISH MUSEUM NAT. HIST. LONDON."

The composition of the Committee remains the same as given in the previous report. Once again the whole burden of the headquarters work has been borne by the Honorary Secretary, Miss E. P. Leach. With the resumption of fuller activity, this task has become a very heavy one to be performed by anyone single-handed, and the indebtedness to Miss Leach for her devoted labours, and for the continued benefit of her long experience, cannot be expressed too highly.

FINANCE.

The increased price of rings to participants in the scheme does not cover the higher costs that have now to be met, and the future financial position is a matter of some concern. The accounts are published biennially in the Report of the British Trust for Ornithology.

PROGRESS OF RINGING.

Production difficulties made it impossible to meet all demands for rings during the year. (It was hoped that this situation would be rectified early in 1947, but the abnormal cold weather and accompanying fuel restrictions caused further delay : apart from unforeseen accidents, however, supplies should be adequate in future). Nevertheless, the number of birds ringed was approximately double the figure for 1945 ; and many new ringers took part.

The Skokholm Bird Observatory was responsible for the greatest number, with a total of over 6,000, comprising 53 species (including a Spotted Crake, the second specimen to be ringed). The return from the Isle of May shows 40 species in a smaller total : among these are such rare passage-migrants as Red-breasted Flycatcher, Yellow-browed Warbler, Ortolan Bunting and Lapland Bunting—the last being a new species to the ringing records. The Spurn Bird Observatory has been more recently established, but although the total for 1946 was not very large the species trapped included

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*A publication of the British Trust for Ornithology.

†The previous report was published in *Brit. Birds*, Vol. xxxix, pp. 171-175.

Red-breasted Flycatcher, Mealy Redpoll and Barred Warbler. The London Natural History Society had the largest variety of any, their list containing 65 species : among them were 19 young Black Redstarts, the largest number ringed in one year, so far.

RECOVERIES.

Recovery records of individual interest include a Robin marked at the Isle of May in October and found (presumably in its native locality) in South Norway in April. This is the first indication by ringing of the origin of some of the Continental Robins wintering in Britain.

In the report for 1945 mention was made of the long distance covered by a Kestrel from Northumberland to Inverness-shire, and another Kestrel from the same brood has since been found in Surrey. Taken together the two records are particularly interesting. As a case of longevity, a Heron ringed in 1933 and found dead in the severe weather of February 1947 is worthy of mention.

Ten Manx Shearwaters from Skomer and Skokholm have been reported from the south-eastern corner of the Bay of Biscay, an area which has already provided many recoveries. This appears to be a much-favoured gathering-place of the species, and the fishermen catch numbers by throwing baited lines. "Shooting is not satisfactory," writes one correspondent, "as the discharge of one cartridge causes the whole flock to disappear over the horizon."

PUBLICATION OF RESULTS.

The following publications have been made under the auspices of the Committee since the last report.

E. P. Leach (1946). "Recovery of Marked Birds," *Brit. Birds*, Vol. xxxix, pp. 365-370.

D. Lack (1946). "Do juvenile birds survive less well than adults?" *Brit. Birds*, Vol. xxxix, pp. 258-264 (and 320).

NUMBER OF BIRDS RINGED.

	Trapped.	*Nestlings.*	*Total.*
In 1946	8,909	8,412	17,321
,, 1945	1,875	5,419	7,294
,, 1944	1,183	5,313	6,496
,, 1943	660	3,920	4,580
,, 1942	1,301	3,266	4,567
,, 1941	3,109	3,990	7,099
,, 1940	14,974	6,208	21,182
,, 1939	27,983	27,834	55,817
,, 1938	24,162	26,162	50,324
,, 1937	21,900	23,281	45,181
From 1909 to 1936	...	... ...	530,733

Grand Total (including arrears) 751,478.

INDIVIDUAL TOTALS FOR 1946.

	Trapped	*Nestlings*	*Total*
Skokholm Bird Obs.	4734	1653	6387
Wildfowl Inq. Committee	1172	—	1172
Cowin, Crellin, Ladds and Williamson	107	539	646
I. of May Bird Obs.	443	111	554
London N.H.S.	126	322	448
R. H. Brown	1	317	318
John Lees	241	52	293
R. H. Poulding	63	228	291
Spurn Bird Obs.	285	4	289
Bootham School	237	43	280
the late Mrs. Hodgkin	49	231	280
J. J. Boon	12	254	266
K. R. Chandler	4	191	195
Bedford School	41	142	183
Cheltenham Coll. N.H.S.	6	168	174
R. M. Band	85	77	162
A. E. Billett	5	154	159
R. Perry	—	148	148
Ash and Ridley	76	72	148
A. Darlington	10	135	145
S. Marchant	23	117	140
W. Howe	4	136	140
R. Elmes	19	103	122
D. Goodwin	32	87	119
J. Ferguson Lees	11	104	115
A. Watson	34	76	110
Edwards and Watson	1	108	109
E. Cohen	33	76	109
J. Bartholomew	4	98	102
R. E. Williams	2	95	97
Sedbergh School	9	88	97
D. R. Anderson	34	62	96
Clayesmore Sch.	30	64	94
B. Campbell	11	83	94
R. F. Ruttledge	—	94	94
Oundle School	—	93	93
Oxford Orn. Soc.	85	5	90
Repton School	—	88	88
T. Russell Goddard	—	83	83
W. A. Cadman	—	81	81
R. M. Garnett	77	3	80
Lord and Ainsworth	8	71	79
F. M. Gurteen	55	24	79
S. H. Sporne	5	65	70
Storer and Jolley	52	16	68
L. A. Cowcill	31	37	68
V. H. Spry	1	66	67
B. Astin	1	65	66
Lord David Stuart	26	40	66
D. R. Mirams	7	58	65
Edward Grey Inst.	6	58	64
A. W. Boyd	32	31	63
F. W. Fox	32	31	63
Shrewsbury School	2	55	57
E. G. Holt	37	19	56
L. Rendell	11	45	56
C. B. Wainwright	52	3	55
J. Fisher	17	38	55
E. J. M. Buxton	16	38	54
R. Carrick	17	35	52
H. M. Rogers	4	48	52
M. Stewart	8	44	52
A. H. Johnson	3	48	51
J. D. Mills	48	—	48
St. Edmund's Sch.	3	43	46
G. F. Dixon	9	36	45
F. J. Brown	3	41	44
H. O. Bunce	—	42	42
Leighton Park Sch.	25	13	38
D. Shackleton	8	29	37
D. Ramsden	21	15	36
C. Oakes	—	35	35
R. Martinson	1	34	35
J. P. Kyd	10	23	33
Mrs. Upton	8	23	31
Brooker and Cawkell	2	28	30
Marlborough Coll.	18	11	29
J. W. Wainwright	12	14	26
Mmes. Anscombe and Read	1	24	25
Wood-Pigeon Inq.	—	25	25
G. L. Potts	3	21	24
R. C. L. Pilkington	—	23	23
J. V. Morley	5	18	23
E. D. Knight	13	9	22
I. M. Goodbody	11	11	22
O. A. Dod	—	21	21
P.A.S. and Mrs. Hirst	5	15	20
Uppingham Sch.	—	20	20
C. M. Swaine	2	18	20
G. Hughes-Onslow	—	20	20
A. N. Sykes	19	—	19
G. F. Raeburn	3	16	19
H. Tully	5	13	18
M. P. Winser	13	5	18
K. A. Hardwick	1	16	17
H. Davies	—	17	17
J. Skea	5	11	16
T. O. James	8	7	15
Charterhouse B.C.	3	11	14
R. B. Cook	6	8	14
M. A. Bullen	13	—	13
L. G. Weller	2	11	13
Bryanston Sch.	4	9	13
Mrs. Knowles	—	13	13
C. T. Stevenson	9	3	12

Thirty-eight other Ringers marked fewer than a dozen birds each.

	NUMBERS OF EACH SPECIES RINGED					RECOVERED	
	1909 to 1945	1946 Trapped	Nest lings	Total	Grand Total	of those ringed 1909-45	Per-centage
Raven	257	1	37	38	295	20	7.8
Crow, Carrion ...	1795	1	142	143	1938	86	4.8
Rook	5086	16	3	19	5105	261	5.1
Jackdaw	4138	85	23	108	4246	206	5.0
Magpie	1308	4	97	101	1409	51	3.9
Jay	586	7	60	67	653	42	7.2
Chough	54	1	4	5	59	3	5.6
Starling	70219	329	56	385	70604	3193	4.5
Greenfinch ...	30969	145	340	485	31454	2461	7.9
Goldfinch ...	619	3	20	23	642	9	1.45
Redpoll, Lesser ...	620	1	8	9	629	6	1.0
Linnet	10650	15	135	150	10800	72	0.7
Bullfinch	1714	9	46	54	1768	61	3.6
Chaffinch	34079	339	55	394	34473	1501	4.4
Brambling	1026	10	—	10	1036	41	4.0
Sparrow, Tree- ...	2571	6	23	29	2600	88	3.4
Bunting, Yellow ...	6121	19	99	118	6239	415	6.8
Bunting, Reed- ...	2075	7	45	52	2127	95	4.6
Lark, Sky-	3743	2	11	13	3756	48	1.3
Pipit, Tree- ...	1944	3	47	50	1994	5	0.3
Pipit, Meadow- ...	5680	146	56	202	5882	117	2.1
Pipit, Rock- ...	686	56	27	83	769	30	4.4
Wagtail, Yellow ...	1151	4	45	49	1200	4	0.3
Wagtail, Grey ...	938	1	31	32	970	2	0.2
Wagtail, Pied ...	7007	22	96	118	7125	95	1.4
Shrike, Red-backed	943	3	20	23	966	4	0.4
Flycatcher, Sptd. ...	3593	29	31	60	3653	14	0.4
Flycatcher, Pied ...	1592	17	89	106	1698	9	0.6
Chiffchaff	1028	33	41	74	1102	6	0.6
Warbler, Willow- ...	10655	412	10	422	11077	52	0.5
Warbler, Wood- ...	1102	3	12	15	1117	2	0.2
Warbler, Sedge- ...	1402	53	19	72	1474	7	0.5
Warbler, Garden- ...	1358	17	13	30	1388	5	0.4
Blackcap	995	15	17	32	1027	2	0.2
Whitethroat ...	4997	429	7	436	5433	43	0.9
Thrush, Mistle- ...	5095	14	211	225	5320	118	2.3
Thrush, Song- ...	70010	170	702	872	70882	1441	2.1
Redwing	964	4	—	4	968	7	0.7
Ouzel, Ring- ...	585	1	43	44	629	6	1.0
Blackbird	61642	498	122	620	62262	3024	4.9
Wheatear	1998	88	56	144	2142	39	2.0
Whinchat	1773	5	29	34	1807	12	0.7
Stonechat	1031	10	33	43	1074	7	0.7
Redstart	2357	28	123	151	2508	16	0.7
Robin	23607	242	99	341	23948	2299	9.7
Sparrow, Hedge- ...	15319	73	16	89	15408	1423	9.3
Wren	3820	53	—	53	3873	25	0.7
Dipper	1777	—	19	19	1796	22	1.2
Swallow	47270	42	536	578	47848	425	0.9
Martin, House- ...	12802	38	124	162	12964	83	0.6
Martin, Sand- ...	4882	60	21	81	4963	15	0.3
Swift	1110	21	25	46	1156	63	5.7
Kingfisher ...	755	1	6	7	762	33	4.4
Cuckoo	815	4	25	29	844	22	2.7

	NUMBERS OF EACH SPECIES RINGED					RECOVERED	
	1909 to 1945	1946 Trapped	Nestlings	Total	Grand Total	of those ringed 1909-45	Percentage
Owl, Little	752	10	65	75	827	69	9.2
Owl, Long-eared	251	—	7	7	258	8	3.2
Owl, Barn-	697	6	18	24	721	73	10.5
Owl, Tawny	1166	6	59	65	1231	69	5.9
Falcon, Peregrine	99	1	10	11	110	12	12.1
Merlin	293	3	12	15	308	53	18.1
Kestrel	1072	2	43	45	1117	111	10.4
Buzzard	425	—	35	35	460	17	4.0
Hawk, Sparrow-	725	2	66	68	793	102	14.1
Heron, Common	2278	2	70	72	2350	288	12.6
Duck, Sheld-	475	—	3	3	478	22	4.6
Mallard	6997	10	16	26	7023	1122	16.0
Teal	3332	1142	—	1142	4474	435	13.1
Wigeon	429	1	—	1	430	67	15.6
Duck, Tufted	265	5	12	17	282	55	20.8
Goosander	52	—	—	—	52	10	19.2
Cormorant	2462	—	27	27	2489	536	21.8
Shag	1967	—	27	27	1994	201	10.2
Gannet	10577	100	367	467	11044	367	3.5
Petrel, Storm-	579	49	5	54	633	41	7.1
Shearwater, Mx.	20105	2873	300	3173	23278	1015	5.0
Petrel, Fulmar	471	5	77	82	553	2	0.4
Pigeon, Wood-	3711	2	191	193	3904	157	4.2
Dove, Stock-	832	1	20	21	853	68	8.2
Dove, Turtle-	723	2	6	8	731	75	10.4
Curlew, Stone-	260	—	—	—	260	10	3.8
Oyster-catcher	1892	3	131	134	2026	82	4.3
Plover, Ringed	1577	1	55	56	1633	20	1.3
Plover, Golden	378	—	3	3	381	9	2.4
Lapwing	41551	5	581	586	42137	901	2.2
Dunlin	129	4	—	4	133	1	0.8
Sandpiper, C.	945	2	49	51	996	4	0.4
Redshank	2481	—	44	44	2525	81	3.3
Curlew, Common	3307	1	78	79	3386	135	4.1
Snipe, Common	1783	12	21	33	1816	88	4.9
Woodcock	5406	1	3	4	5410	413	7.6
Tern, Sandwich	18155	—	280	280	18435	322	1.8
Tern, Roseate	444	—	17	17	461	1	0.2
Tern, Common	19763	—	84	84	19847	471	2.4
Tern, Arctic	3124	1	111	112	3236	15	0.5
Tern, Little	851	—	59	59	910	8	0.9
Gull, B.-headed	14331	21	34	55	14386	694	4.8
Gull, Common	2269	12	114	126	2395	82	3.6
Gull, Herring-	8761	20	134	154	8915	247	2.8
Gull, L. Bl.-bkd.	10856	45	90	135	10991	419	3.9
Gull, G. Bl.-bkd.	641	17	36	53	694	26	4.1
Kittiwake	2120	3	101	104	2224	29	1.4
Skua, Great	529	—	120	120	649	18	3.4
Razorbill	4583	212	447	659	5242	100	2.2
Guillemot	2487	40	168	208	2695	55	2.2
Puffin	5450	322	95	417	5867	91	1.7
Crake, Corn-	566	5	9	14	580	9	1.6
Moorhen	1857	73	9	82	1939	58	3.1

NOTES.

CARRION CROWS ATTACKING JAY.

On April 22nd, 1947, near Muthill, Perthshire, I caught a glimpse, from a car, of a commotion in some rough grassland near the edge of a wood. I stopped the car and my wife and I then saw that a pair of Carrion Crows (*Corvus c. corone*) was attacking something hidden from our view in the rough grass. One of the Carrion Crows would swoop down, and then rise a few feet in the air with a Jay (*Garrulus glandarius rufitergum*); there was a great flapping of wings, accompanied by loud alarm cries from the Jay and hoarse croaks from the crows. The crow appeared to be trying to carry off the Jay in its claws, but the confused wing-flapping made it difficult to be sure of this point. The second crow was near at hand, croaking, while another Jay was sounding the alarm some twenty yards away. The Jay would escape and fall to the ground, to be immediately attacked again by the crow. This happened four or five times, and then I stepped out of the car to get a better view. This action alarmed the crows, which flew off, and the Jay fluttered towards me. It was obviously seriously injured, and my wife and I had little difficulty in catching it. One eye had been torn out, as had many of the feathers of the forehead and crown, and the bird was bleeding badly about the head. A large patch of feathers had also been torn from the back. As the bird was in very bad shape, I put it out of its misery. Alexander Cross.

INTELLIGENCE OF ROOK.

The amount of "reasoning power" shown by birds is an ever fruitful topic for discussion. An instance of the intelligence displayed by a Rook (*Corvus f. frugilegus*) may therefore be of interest.

Some pieces of fat and meat trimmings had been threaded on a piece of string and suspended from a low branch of a silver birch for the delight of the tits. The string hanging from the branch was about 18 ins. long, and was about twelve yards from a window of our house at Muthill, Perthshire.

On the afternoon of February 17th, 1947, I was watching from the window the antics of the tits, when a Rook landed in the tree. It watched for a few moments and then hopped down from branch to branch until it was perched on the branch from which the fat was suspended. For a few moments it cocked its head from side to side eyeing the fat. Then it gripped the string with its beak and drew it up as far as it could and placed its foot on the string. Bending forward it again gripped the string, drew it up farther, and again placed its foot on it. The Rook was now able to seize the fat in its beak. On getting a really good grip on the fat with its beak, the Rook flew off—as far as the length of the string! On reaching this limit the fat was rudely jerked from the bird's beak and the Rook stalled for a moment. It recovered and flew off, but within a minute it was back at the birch. The same procedure was gone through, but this time the bird made no attempt to fly off with the fat. Instead it held the fat on the branch under one foot and proceeded to tear it to bits. At this I drove it off, as the fat was intended for the tits.

I do not know if the Rook had made any previous attempts to get the fat, but it showed considerable ingenuity in pulling the fat up. On the second attempt which I witnessed, the Rook had obviously learned a lesson, for although the fat was pulled up immediately, no attempt was made to fly off with it.

ALEXANDER CROSS.

[The capacity of various birds to solve, apparently spontaneously, the problem of pulling up food suspended from a string is discussed in a paper on "A type of Insight Learning in Birds" by Dr. W. H. Thorpe in *Brit. Birds*, Vol. xxxvii, pp. 29-31, where an earlier record for the Rook in J. G. Sowerby's *Rooks and their Ways* (1899) is quoted.—EDS.]

"ANTING" OF TAME JAY.

ON May 29th, 1947, I placed a quantity of ants and pupæ of the large wood-ant on the floor of an aviary containing, amongst other birds, two Jays (*Garrulus glandarius rufitergum*). These birds were hand-reared in 1946 and had seen no ants with the possible exception of an odd worker of the small black species.

After some hesitation one of the Jays flew down and cautiously approached the ants. It picked up a cocoon and swallowed it after first crushing between the mandibles. Then it seized an ant in the same manner, only to fling it aside with a violent jerk and much head shaking. It then tried another with the same result, after which it confined its attention to the pupæ. An ant climbed its leg and was picked off and flung away. The bird then hopped forward picking up pupæ; several ants crawled up its legs at once and the bird instantly adopted a most peculiar posture, raising the body and drooping wings and tail. It then spread and dragged its tail on the ground, grovelling along and seemingly trying to bring its vent and abdomen in contact with the ants, lifting its drooped wings to peck underneath them and at the primaries in a hurried way. The tail was pressed so far forward that several times it came between the bird's legs and caused it to overbalance and literally "sit on its tail."

At one point the bird was startled by a Domestic Collared Dove suddenly flying down, and flew up, but returned at once and deliberately hopped among the ants and repeated the process for about a minute, after which it flew up and shortly after took a water bath.

The points I particularly noticed were that the reaction was evoked by the contact of several ants, not by the sight of them.

(In this connexion it is interesting that it is contact with water, not the sight of it that appears to initiate water-bathing in Jays and many other birds). The birds made no attempt to place ants among its plumage by the use of its bill. The actions and postures assumed were quite distinct from those used in water-bathing. The behaviour of the bird throughout suggested (presumably) pleasant but hardly bearable irritation.

All the actions described were observed at a range of only about a foot. DEREK GOODWIN.

HOUSE-SPARROW PLUCKING FEATHERS FROM WOOD-PIGEON.

ON April 21st, 1947, I was watching a pair of Wood-Pigeons (*Columba p. palumbus*) in Bloomsbury Square, London. A female House-Sparrow (*Passer d. domesticus*) flew up, perched on a branch about three feet away from the two birds and then attacked the under tail-coverts of one of the birds, removing a feather. It flew off (probably to its nesting site) returning in ten to fifteen seconds; the Wood-Pigeon made a few half-hearted pecks, but again it was successful in obtaining a feather or feathers. This was repeated four times, the House-Sparrow once taking such a peck that seven feathers floated down. GWYNETH M. HARRISON.

WOOD-LARK IN ESSEX.

WITH reference to the records of the occurrence of the Wood-Lark (*Lullula a. arborea*) in the Hainault area of Essex during 1945 and 1946 (*antea*, p. 136, and Vol. xxxviii, p. 353), I wish to report that on May 30th, 1947, I watched a pair of these birds feeding one almost fully fledged young bird on the borders of Hainault Golf Course on Dog Kennel Hill. The short tails of all the birds were distinctive, especially in the case of the young one, and the eye stripes met on the nape. The adults called in a plaintive note I wrote down as "tutulee." In all I watched them for about 30 minutes at ranges as close as ten yards. A. R. M. BLAKE.

WOODCHAT SHRIKE IN GLAMORGAN.

ON the evening of May 22nd, 1947, while walking across a common, near Singleton Park, Swansea, I was surprised to see a strikingly pied bird fly from a small birch tree. I kept it under continuous observation for half an hour at close range, and through ×8 glasses, as it flew from one perch to another. Having checked in *The Handbook* the notes and sketches made in the field, I was satisfied that this was a male Woodchat Shrike (*Lanius s. senator*).

The following features were clearly observed :—crown, nape and upper mantle chestnut; rest of mantle and back black with greyish tinge, shading to grey on rump, and white upper tail-coverts; tail feathers black with some white markings; a black band extending from forehead through superciliary region and ear-coverts to shoulders; prominent, white scapulars, and wing-bar towards bases of primaries; throat and upper breast pure white shading to cream on rest of under-parts. The flight throughout was low, near ground, with shallow undulations, a final upward sweep to the perch and with several fan-like spreadings of the tail on settling. Further it was observed to dive repeatedly from its perch into the undergrowth, whence it returned with captured insects.

GEORGE R. SHANNON.

PIED FLYCATCHER IN INVERNESS-SHIRE.

IT may be of interest to record that I saw a male Pied Flycatcher (*Muscicapa h. hypoleuca*) on May 16th, 1947, at Glen Finnan on the west coast of Inverness-shire. I understand there is no record of the Pied Flycatcher nesting in the Western Highlands. The bird I saw may, of course, only have been a straggler on passage. I watched it for several minutes with glasses while it moved about in an oak tree. J. S. C. ALEXANDER.

MIMICRY OF CURLEW CALL BY MISTLE-THRUSH AND BLACKBIRD.

ON APRIL 8th and 9th, 1939, whilst on Royal Common, Surrey, B. T. Brooker and I heard a Mistle-Thrush (*Turdus v. viscivorus*) give excellent imitations of the "courlee" and bubbling cries of the Curlew (*Numenius a. arquata*). The "courlee" was heard incorporated in the song. The other call was given more rarely.

E. M. CAWKELL.

WITH reference to the note on this subject (*antea, p.* 147), and in view of the remarks by the Editors that they are unaware of any previous record, it may be of interest to record that a Blackbird (*Turdus m. merula*) in the garden here at Ardrennich, Strathtay, Perthshire, has this spring (1947) been giving excellent imitations of the "courlee" call of the Curlew (*Numenius a. arquata*). The note, which is loud aud clear, is as a rule given singly, most often at the beginning of a phrase. JAMES W. CAMPBELL.

REFERRING to Mr. Derek C. Hulme's record of Blackbirds (*Turdus m. merula*) mimicking the "courlee" cry of the Curlew (*Numenius a. arquata*) (*antea*, p. 147), I have frequently heard this note imitated by Blackbirds in one of the Surrey breeding haunts of the Curlew. One bird uttered the "courlee" note followed by a perfect rendering of the Curlew's barking "guck, guck, guck" of alarm.

HOWARD BENTHAM.

IN corroboration of Mr. Hulme's note (*antea*, p. 147), I wish to state that on two occasions I have heard the call-note of the Curlew (*Numenius a. arquata*) imitated by the Blackbird (*Turdus m. merula*).

On April 22nd, 1947, in a lane leading to Allerthorpe Common in Yorkshire, I heard a Blackbird render several "courlee" notes, from the top of a hawthorn bush.

On April 26th, 1947, at the same place, I heard two Blackbirds, stationed 100 yards apart, both of which included frequent groups of "courlee" notes in their songs, over a period of 20 minutes.

The two pairs of Curlew, which appeared to be breeding on the common, were a fair distance away, their cries being all but inaudible. Probably the only occasions on which the Blackbirds could hear the Curlew were during the circular flights which the latter made at irregular intervals, often of some hours, and during which they called and performed the towering spring flight and twittering call.

B. CLIFFORD.

THIS spring, 1947, we have had a Blackbird (*Turdus m. merula*) in our garden at Beaconsfield, Bucks., which has very frequently uttered imitations of the "courlee" note of the Curlew (*Numenius a. arquata*). In fact it is what might be termed a regular part of one of the phrases of its song. It is usually uttered two or three times running at the beginning of a phrase. J. H. HAY.

REDWING NESTING IN SUTHERLAND.

IN 1926 when salmon fishing in May in northern Sutherland, in a wild district of moorland and birch scrub with very few trees of any account, I saw a Redwing (*Turdus musicus*), which from the brilliance of its red flank patches I took to be a cock.

In 1927 I saw a pair in the same locality in May. I had no time to devote to watching them systematically, but I felt confident that they nested, as in June only the presumed cock was seen about.

In 1933 there was again a pair in the same locality in April. The birds were very tame, just flying in front of one as one fished and settling in a bush by the river until one came up with them again. Unfortunately, in May, the cock was killed, no doubt by a Peregrine Falcon or Sparrow-Hawk. The feathers at the "kill" were unmistakable.

In spite of this the hen made a nest, which was built in a red-currant bush against the garden wall of the Lodge of the estate, which stands on ground sloping towards the river and is very quiet and secluded. The nest was about four feet from the ground and was of the regular Redwing type, much like a Blackbird's, with some mud in the construction, but a good deal smaller. It was finished on June 8th and the first egg was laid on the 10th. The hen took eight days to lay four eggs. She sat on the nest for eight or nine days and then left it. After a lapse of a further four or five days I found, on inspection, that one egg was lying on the ground broken and two in the nest had been pecked ; only one was whole and this was taken and preserved. On blowing it appeared to be, naturally, infertile. The eggs were typical Redwing's, much like a Blackbird's but a good deal smaller.

The sound egg and the pecked ones were kept by the keeper, who was an exceptionally knowledgeable man about birds and had actually found the nest. He also photographed the nest *in situ*.

Unfortunately he died in 1943, and his widow informs me that the egg came to grief through an accident.

I may add that there can be no question whatever about the identity of the birds seen by me, as I have spent a considerable time in Finland and Lapland and am thoroughly familiar with Redwings. The keeper's widow further informs me that her son assures her that his father found another Redwing's nest in 1941, in a locality not far from the one above recorded, but of this unfortunately no more precise details are available.

J. D. LLOYD.

DISPLAY OF YOUNG BLACKBIRDS IN SEPTEMBER.

ON September 12th, 1946, I noticed a couple of Blackbirds (*Turdus m. merula*) in my garden at The Hague. The hen was drooping wings and the cock showed parts of display as described in *The Handbook.* The latter was a young bird ; as is well-known the juvenile hens are only distinguishable with difficulty.

After that the cock chased the hen for some distance through the gardens and over the houses.

Similar observations of "präpubere instinktive Symbolhandlungen" (Portielje), which might be translated "instinctive symbolic behaviour in immature birds," have been made with the Southern Cormorant (*Phalacrocorax carbo sinensis*) by Kortlandt (*Ardea*, 1938, pp. 33-38).

Autumn display of juvenile Grey Plovers (*Squatarola squatarola*), Little Stints (*Calidris minuta*) and Dunlins (*Calidris alpina*) is mentioned by E. Christoleit (*Beitr. zur Fortpflanzungsbiologie der Vögel*, 1936, pp. 177-187, 239-251).

Broekhuysen (*Ardea*, 1935, pp. 239-250 and 1937, pp. 159-172) gave observations about the behaviour of juvenile Herring-Gulls (*Larus a. argentatus*) and Great Black-backed Gulls (*Larus marinus*) in this respect.

I have seen young Blackbirds chasing each other during summer and early autumn before, but I never saw such clear sexual behaviour as on the above occasion.

I have also observations of Kestrels (*Falco t. tinnunculus*) displaying in August and September. They were probably young birds too, as regular courting begins only much later according to *The Handbook.*

In some species, however, autumn display and posturing of adult birds seem to be more or less common too (*cf.* Morley, *Ibis*, 1943, pp. 132-158), but we do not know much about it so far. A great difficulty is that we often cannot distinguish juvenile and adult birds adequately.

D. A. VLEUGEL.

GREAT SPOTTED WOODPECKER FEEDING ON PEAS.

ON February 6th and 7th, 1947, during the early part of the cold spell, I watched a Great Spotted Woodpecker (*Dryobates major* *anglicus*) feeding on peas, a food which *The Handbook* does not mention for this species. It obtained them from a haystack, in which a small proportion in the pod were mixed with the grass, and took them one at a time to a nearby willow, where it wedged them in a crevice and extracted the "kernel." On the two dates mentioned I saw it dispose of at least 15 in this way. JOHN TENNENT.

LITTLE OWL AS PREY OF TAWNY OWL.

I RECENTLY dissected a Tawny Owl (*Strix aluco sylvatica*) pellet, taken near Cotgrave, Notts., on April 12th, 1947, and found it to consist wholly of the bones and feather debris of a Little Owl (*Athene noctua vidalii*). Both upper and lower mandibles of the latter were intact, and several feathers were so little damaged that specific identification was possible also from these. This prey is not mentioned in *The Handbook*. J. STATON.

GREENLAND FALCON IN CORNWALL.

ON May 4th, 1947, by the Cornish cliffs west of Zennor, my wife and I had a splendid view of a Greenland Falcon (*Falco rusticolus candicans*). It was flying N.E. along the coast and swiftly exploring the indentations of the cliffs. In its rapid flight and shape it suggested a large Peregrine, but appeared perfectly white—the black markings were not noticeable owing to the brilliant light—so I think the possibility of its being an Iceland Falcon may be ruled out.

It is a late date for this rare visitor, but it was probably returning from winter quarters to its arctic breeding haunts.

W. WALMESLEY WHITE.

DISPLAY OF MUTE SWAN.

AS a recent observation of the display of the Mute Swan (*Cygnus olor*) differs in a few details both from that given in *The Handbook* (Vol. iii, p. 176) and that by Dr. J. S. Huxley (*antea*, p. 130), I give it below.

On May 15th, 1947, at Drummond Loch, Perthshire, I observed that a pair of Mute Swans were performing the pre-coitional display. The two birds were side by side, facing in the same direction, the male being on the right. The heads were dipped under water repeatedly and fairly rapidly. Occasionally the head seemed to be shaken from side to side while under water. On being withdrawn, the head was usually given a shake, as if to throw off surplus water. The whole pre-coitional display, which was performed with a rhythmical swaying of the neck, lasted for several minutes, and then the female sank low in the water. Coition then took place as described in *The Handbook*, except that I did not hear any "snoring note." Coition lasted about ten seconds. After coition had finished and the male returned to the water, however, both birds took part in what I would describe as a hoarse, muffled trumpeting. After the trumpeting the two birds raised themselves breast to breast for about ten seconds as described in *The Handbook* except that, like Dr. Huxley, I heard no note accompanying it. The female then began a vigorous preening and tail-wagging, but did not indulge in any bathing. The male, however, bathed for nearly ten minutes—sinking in the water and splashing water over himself. After this he commenced to preen, and was still preening a quarter of an hour later. By this time the pair had moved about 25 yards apart. We had, by then, drifted away and when next I saw them, nearly an hour later, they were together again feeding normally.

None of the several pairs of Mute Swans on Drummond Loch had, on that date, commenced to lay. ALEXANDER CROSS.

LESSER WHITE-FRONTED GEESE ON THE SEVERN.

THREE Lesser White-fronted Geese (*Anser erythropus*) were present during the winter of 1946-47, among the large flock of White-fronted Geese on the Severn Wildfowl Trust's marshes at the New Grounds in Gloucestershire. They never associated one with another and were to be found in different parts of the flock. All three were adults and, by carefully recording the distribution of the black markings on the belly, it was possible to distinguish one from another with certainty. It will be remembered that two Lesser White-fronts were seen on the New Grounds during the previous season among 2,000 White-fronts (*antea*, Vol. xxxix, pp. 77-79) and the suggestion was put forward that the incidence of Lesser White-fronts might be in the nature of one per thousand of those common White-fronts which cross the migration routes of the Lessers. This theory is borne out to some extent by the appearance of three this winter, although at some times the total numbers of geese exceeded 4,000. Very unfortunately details were not taken of the exact belly markings of the two birds of the previous winter, nor is the extent of the possible changes in markings after the summer moult at present known. Records will be made with captive birds this summer. Meanwhile the details of the three Lesser White-fronts of the past winter are as follows :—

No. I.—Definitely male, from aggressive behaviour, posturing, etc. Blaze on forehead reaches, but does not pass line joining eyes over crown. Neat, round and rather dumpy. Medium sized to large (for a Lesser White-front). Belly markings : a group of black spots on centre of belly, one tiny fleck on right side and one rather larger fleck slightly to right of centre line on breast. No. I was seen on the following dates :—December 28th, 29th, 30th ; January 2nd, 3rd, 4th, 13th, 16th, 17th, 18th ; February 17th, 18th, 19th, 20th, 23rd ; March 1st, 2nd ; and photographed at 25 yards on January 4th.

No. II.—Definitely male. Was paired to female common White-front. Blaze on forehead same extent as No. I, but slightly indented by eyes, especially left eye. Small and very dark plumaged, short legs and a long low carriage. Belly markings : a large roundish black patch in centre of belly, with irregular edges.

On right side the forward edge of the black patch reaches highest up flank, on left side the after edge reaches highest. No. II was seen on the following dates:—January 3rd, 16th, 17th, 18th, 25th; February 16th; March 1st, 2nd, 3rd, 15th, 16th.

No. III.—Possibly male. Blaze on forehead same extent as in other two (i.e. not so high as sometimes in Lesser White-fronts). Large and less neat than No. I. Not so dark as No. II. Belly markings: fewer than on No. I. A few small spots on centre of belly. Largest fleck shows on left side, and only just shows on right side. Two flecks behind and above it on the left side. The left wing droops slightly. No. III was seen on the following dates:—January 2nd, 18th; February 3rd, 10th; March 1st, 3rd.

On January 18th all three birds were seen and satisfactorily distinguished one from another by four experienced ornithologists besides myself. On this day No. III was by itself away from the flock and looked rather sick, with ruffled head and neck. Some anxiety was felt for it, but on February 3rd and 10th it appeared to be normal again, although the wing still drooped slightly, and it was consorting with common White-fronts.

All three Lesser White-fronts were seen again on March 1st.

PETER SCOTT.

MALLARD'S NEST WITH TWENTY EGGS.

ON April 16th, 1947, I found on Walland Marsh, Kent, the nest of a Mallard (*Anas p. platyrhyncha*) containing 20 eggs. This nest was subsequently visited on four occasions while incubation was taking place and only a single female was found to be present. Finally, on May 18th, the young were seen in a nearby ditch with a single female in attendance. It would thus seem improbable that the eggs were laid by more than one female. *The Handbook* gives the maximum number of eggs laid by the Mallard as sixteen.

D. D. HARBER.

[It should be noted that the possibility of a second female having laid in the nest and then gone away is not excluded.—EDS.]

BLUE-WINGED TEAL IN LINCOLNSHIRE.

ON April 22nd, 1947, I paid a short visit to a fen near Lincoln and found there in a party of swans, ducks, and waders, a drake Blue-winged Teal (*Anas discors*). Its most noticeable characters were the white crescentic patch between bill and eye, black under tail-coverts bordered white in front as in Wigeon drake, vermiculated flanks, and, on the wing, blue shoulder patches. It was about equal in size to a pair of Garganey in the same party. Replies to enquiries made in various well-informed quarters regarding the possibility that the bird was an "escape" suggest that this species may be breeding in a feral state in Lincolnshire, but that a chance crossing of the Atlantic should not be entirely ruled out.

RONALD M. GARNETT.

DISPLAY FLIGHT OF CORMORANT.

ON May 11th, 1947, at Stodmarsh, East Kent, we observed an interesting form of ærial display of the Cormorant (*Phalacrocorax c. carbo*). On looking up *The Handbook* we found no reference to this particular form of behaviour, and in view of this fact we consider that a description might be of interest.

A number of Cormorants (which are always present in this locality) were in the air. One of the birds was observed to fly round in wide circles and on a number of occasions to glide downwards at an angle of about 45°, swooping up again steeply when nearly touching the water or reeds. These swift glides included tumbles in the air very reminiscent of those seen in the Raven (*Corvus c. corax*). Several times the bird turned right over sideways on to its back, righting itself on the same side. The wings appeared to be half-closed when this half-somersault was performed. This occured during a windless period of brilliant sunlight.

W. R. ROBINSON AND E. O. HÖHN.

WHITE-BILLED NORTHERN DIVER IN SHETLAND.

A SHETLAND record of a *Colymbus adamsii* has already been published by the writers and B. W. Tucker (*antea*, pp. 112-3). This bird, probably in its second winter, was picked up dead on January 21st, 1946, at the head of Whiteness Voe.

During the winter and spring of 1946-7 all the large divers that were seen reasonably near inshore on these west-side voes were carefully examined. Many were too far off for satisfactory views but 42 birds (not necessarily all different individuals) came close enough for really detailed observation. They were all, without exception, Great Northern Divers (*C. immer*). A note is in the course of preparation on the different plumages of the immature birds.

The last full-plumaged adult was noted on May 22nd, since when only immatures have been seen. During the afternoon of June 8th, 1947, however, an adult White-billed Northern Diver in full breeding plumage swam slowly past our house on the shore of Weisdale Voe. Excellent views were obtained through 12 × 50 binoculars in clear sunlight at a distance of 50-60 yards. The large, tip-tilted bill appeared more "cream-yellow" than "cream-white" and was extremely conspicuous at that range : in fact it could be seen with the naked eye. The white spots on the upper parts, larger than those of *C. immer*, were also noted.

L. S. V. AND U. M. VENABLES.

STOCK-DOVE NESTING ON JETTY HALF-A-MILE FROM LAND.

ON May 10th, 1947, we found the nest of a Stock-Dove (*Columba œnas*) on the jetty that runs out into the Thames estuary near St. Mary's Bay, Kent.

There are three concrete buildings on this jetty, at a point about half-a-mile from the shore. The nest was in the furthest one. This building is about 12 feet square on the inside, and nearly dark when the doors are shut, being lit only by a small hole in the roof and another a little larger, perhaps eight inches square, at ground level, through which the bird entered. One egg had been laid in a corner 13 feet from the entrance hole on the floor with hardly any nesting material. The bird was on the nest and although inadvertently flushed several times on that and the following day returned persistently, waiting on some other part of the jetty and returning as soon as we left. The egg had quite evidently been laid on the evening of May 9th. DEREK GOODWIN AND W. G. TEAGLE.

KENTISH PLOVER IN NOTTINGHAMSHIRE.

WHILE watching a mixed party of Turnstones, Dunlins and Ringed Plovers on Nottingham Sewage Farm on the evening of May 23rd, 1947, I was much struck, even at long range, by the pale colour and smaller size of a bird among the latter, and after working up to within 20 yards during the next half hour, was able to make notes and sketches verifying this bird's identity as a male Kentish Plover (*Leucopolius a. alexandrinus*).

The details, from my notes on the spot, are "Decidedly smaller and slighter in build than closely adjacent Ringed Plover, which it resembled in a general way. Back and wings sandy-brown, noticeably paler than in Ringed Plover. White of underparts continued on breast and throat, on face almost to eye level, and in a complete ring round neck. White of forehead narrowed posteriorly into a stripe above eye. Black line from bill through eye, turning down and widening somewhat in region of ear-coverts. Thin black line dividing white forehead from crown and nape, which were of warmer brown than back and wings. A small black mark on either side of upper breast was more definite than similar mark in winter-plumaged Black Tern, but nothing approaching the broad complete black ring of Ringed Plover. Bill and legs blackish, the latter looking very dark brownish-black, rather than dead black, in the low evening sunlight through 25 × telescope.

In flight the bird showed a whitish wing-bar, which, though definite, was not so prominent as that of Ringed Plover, while, again in comparison with the latter, the tail appeared to have more white at the sides, and the centre was completely brown to the tip.

Call, uttered a good deal, a sharp, clear, "wik, wik." General carriage and behaviour much as Ringed Plover, but even more volatile in its swift darting runs." J. STATON.

LATE DATE FOR NORTHERN GOLDEN PLOVER

As latest dates in spring of the Northern Golden Plover (*Pluvialis apricaria altifrons*) are few, and *The Handbook* mentions only one May date for England (May 13th, Sussex), it may be interesting to record that Mr. R. J. Raines and I noted a pair of these birds at Blakeney Harbour, Norfolk, on the afternoon of May 14th, 1947. The birds were carefully observed with glasses and telescope and the distinctive characters were well seen. The intense black of the face and throat, extending down the centre to the breast to join the black under-parts, and the clear-cut white, separating the black from the golden and black upper-parts and broadening out on the breast, were most noticeable. P. R. WESTALL.

"INJURY-FEIGNING" OF OYSTER-CATCHER.

ON June 25th, 1947 as I was walking along the west bank of Scolt Head, Norfolk, a pair of Oyster-catchers (*Hæmatopus ostralegus occidentalis*) ran from the dunes a few yards ahead of me near a spot where there had been a nest of three eggs. One flew up and circled, piping in the characteristic manner. The second bird, however, ran across the adjacent mud-flat at a rather slower speed than is usual, its head hunched in, tail deeply depressed, and the wings extended horizontally and flapping slowly.

This performance, though not very convincing, appeared definitely to be an attempt at "injury-feigning."

In the Supplementary Additions to *The Handbook* it is stated that "injury-feigning," though common in the Faeroes, is not recorded for the British Isles. E. L. ROBERTS.

[Since the Supplementary Additions to *The Handbook* were published two cases of "injury-feigning" in the British Isles have been recorded (*antea*, Vol. xxxix, p. 60).—EDS.]

CLUTCH SIZE OF LITTLE TERN.

The Handbook of British Birds gives the clutch size of the Little Tern (*Sterna a. albifrons*) as "normally 2, frequently 3." I have evidence, however, to support a suggestion that these figures should be transposed.

Three colonies of Little Terns were found on the Norfolk coast at the end of May, 1947. In the second week of June, when clutches were known to be complete and incubation well in progress, a count of all clutches was taken as follows :—

	No. of nests	*1 egg*	*2 eggs*	*3 eggs*
COLONY "A" ...	18	2	3	13
COLONY "B" ...	6	—	2	4
COLONY "C" ...	9	2	2	5
TOTALS	33	4	7	22

I have also discussed the subject with the Watcher at Scolt Island, Mr. C. Chestney, whose experience with terns is considerable, and he agrees that "most Little Terns lay a clutch of three eggs."
E. L. ROBERTS.

[Precise figures such as our correspondent quotes are valuable and are much needed for many British birds, but in the case of the Little Tern observations in one area are not a sufficient basis for generalisation, as in this species there is undoubted variation between different colonies in the relative prevalence of "twos" and "threes." We think the *Handbook* wording "normally two" is certainly open to criticism, but that its essential point that two is in general the commoner clutch is correct. Marples (*Sea Terns*, p. 146) gives the following figures based on 64 nests: three eggs, 28.12%; two eggs, 48.44%; one egg, 23.44%—EDS.]

BLACK-HEADED GULLS BREEDING IN MIDDLESEX.

I REPORTED (*antea*, page 28) the existence of a breeding colony of Black-headed Gulls (*Larus r. ridibundus*) in Middlesex at a sludge disposal works on the confines of the Heathrow Aerodrome. Further enquiries lead me to suppose that the colony developed rather later in the war than I then suggested, and probably in 1944.

This year, 1947, the colony has grown considerably and a count made on two separate occasions, on each of which I was accompanied by another observer (Mr. C. L. Collenette and Mr. E. R. Parrinder), satisfied us that the number of nests was not far, if at all, short of 300. There appeared to be between 700 and 800 birds present in the immediate neighbourhood.

Owing to a rise in the level of the wet parts of the sludge through heavy rainfall or other causes, I found at the end of May that some of the nests were destroyed and a number of the chicks which had struggled towards the water and the very soft mud had become fouled and were likely to perish. But it appeared that the great majority of the broods would be successfully reared.

I am informed that the extension of the Heathrow Aerodrome will make it necessary to cut off before next year part of the largest pond, but there will be a substantial area left and, though smaller, a neighbouring pond, not occupied last year, on which about two dozen pairs of birds have nested this year, will be available. It may therefore be hoped that the colony, having once established itself so firmly, will not forsake the site. CYRIL HURCOMB.

COURTSHIP OF HERRING-GULL ON WATER.

IN VIEW of the fact that *The Handbook of British Birds* gives no account of courtship activities of the Herring-Gull (*Larus a. argentatus*) taking place on the sea, I think the following observations deserve record. They were made on the Isle of May, Fife, on April 11th and 12th, 1947.

When the surface of the sea was calm, pairs of Herring-Gulls could be seen to leave the shore together and settle on the water, and sometimes, when quite large numbers of Herring-Gulls flocked on the water, it could be seen that the pairs kept closely together. Three separate types of activity, all apparently connected with courtship, were observed.

(1) A pair of birds would sit together, bowing and ducking so as to make water run over their backs, uttering at the same time a soft booming note, possibly the "hoo-o, hoo-o" of *The Handbook.*

(2) A pair would sit a few feet apart, dipping or pretending to dip their beaks into the water.

(3) A pair would swim towards one another till their beaks were almost touching, and then toss their heads backwards into the air. In one case this performance ended with one bird chasing the other until they both settled again on the sea. M. F. M. MEIKLEJOHN.

START OF INCUBATION BY HERRING-GULL.

IN *The Handbook* it is stated that Herring-Gulls (*Larus a. argentatus*) begin incubation with their first egg. On the Isle of May between May 7th and 17th, 1947, we handled over 200 single eggs in the nest and judged from their degree of warmth that only about ten per cent. could have been incubated up to the time we disturbed the breeding colonies concerned. Moreover we handled over a score of pairs of eggs, and found about half of them were warm and half were cold. On two occasions we found a pair of eggs, one of which was very warm and the other cold. We conclude that the former had just been laid and that the parent had been on the nest too short a time to warm the first egg appreciably. One of these cases was as late as 1500 hrs., G.M.T., which indicates what is probably an abnormally late time of day for an egg to be laid.

H. F. I. ELLIOTT AND R. E. MOREAU.

LONG-TAILED AND ARCTIC SKUAS IN SOMERSET.

AS *The Handbook* states that the Long-tailed Skua (*Stercorarius longicaudus*) is a rare spring migrant, and "very scarce and irregular on the S. and W. coasts"; also that the Arctic Skua (*Stercorarius parasiticus*) is seldom seen on spring migration, the following note may be of interest.

At 11.30 p.m. (G.M.T.) on May 2nd, 1947, I watched an adult Long-tailed Skua resting on a green of the Minehead Golf Links. There was half a gale blowing from the N.E., and the bird was obviously very tired. (The groundsman said it had been there most of the morning). My time was limited, but I got within 8 to 9 feet before it raised itself sufficiently for me to see the blue-grey legs and black feet.

The same evening, in company with Mr. H. J. Craske, I again saw the skua, and we studied it carefully for nearly an hour. It spent most of that time extracting dead worms and leatherjackets from a hollow which a high tide had recently flooded. I saw it again on the evening of May 3rd; and when H.J.C. and I returned the following morning we were amazed to find two skuas there. We eventually got within 15 yards of them both and had the unique experience of watching a Long-tailed Skua and an Arctic Skua feeding together on a Somerset golf-links in spring.

During the time they were here both birds were silent, even when flushed, apart from a short double note given by the Long-tailed Skua when a dog put it up. Neither skua was seen to victimize any other bird, although there were considerable numbers of terns about. The evening of May 4th was the last time they were seen.

There appears to be only one spring record of a Long-tailed Skua in Somerset. One was seen near Weston-super-Mare, June 23rd, 1912; and an Arctic Skua was shot near Weston-super-Mare, June 4th, 1917.

As we noticed several peculiarities and variations of plumage compared with those given in *The Handbook*, we are sending comparative descriptions of both birds.

Long-tailed Skua.

Forehead, crown, and upper nape black, also small jet black bill; the whole forming a continuous black cap to below the level of the eye, but not extending down to the lower nape as shown in *The Handbook*. Back and sides of neck, also cheeks, creamy-white; no trace of yellow. Mantle smoke grey, darkening to black-grey on back and rump. Chin, throat, and upper breast creamy white; lower breast and rest of under parts smoke grey, darkening considerably on the abdomen and under tail-coverts. The base of the tail was much hidden by the primaries, but appeared to be blackish. The distal portion, which we estimated to be at least eight inches long, was black. The primaries, which were considerably longer than shown in *The Handbook*, were black. The secondaries very dark grey; wing-coverts light grey. The legs were blue-grey; the feet and webs black. In flight the undersides of the wings were dark, the outer web of the primaries showing white.

Arctic Skua.

Forehead light buff; crown and nape dark brown, forming a rather ragged cap with the point considerably lower on the nape than in the Long-tailed Skua. Bill brown with black tip; larger and heavier than Long-tailed Skua. Sides of neck and cheeks white; no trace of yellow. Mantle, back and rump grey. Chin, throat, breast and under-parts white. The tail blackish brown, the distal portion estimated at three inches. The primaries very dark brown; secondaries dark grey; wing-coverts light grey-brown; lesser wing-coverts black. The legs and feet black-brown. In flight the undersides of the wings were dark, showing slightly paler at the base of the primaries.

From these descriptions it will be seen there was an entire lack of brown in the plumage of the Long-tailed Skua, and very little in the Arctic. On the ground the Long-tailed Skua looked the larger of the two birds, even excluding the long tail, but in flight the Arctic appeared heavier and less tern-like.

A. V. Cornish and H. J. Craske.

LONG-TAILED SKUA IN CUMBERLAND.

On April 30th a Long-tailed Skua (*Stercorarius longicaudus*) was found dead beside the coast road, two miles north of Maryport, Cumberland. It had evidently flown into the telegraph wires one or two days previously. The bird was probably driven to land by the westerly gales which had been blowing for a week.

The bird was an adult in summer plumage with no immature under wing-covert or axillary feathers. All the winter plumage feathers had been moulted with the exception of one of the under tail-coverts. The new wing, tail, and tail-covert feathers were not fully developed. The elongated central tail feathers were at least two inches short of the full normal length. The measurements were: wing 306 mm., tail 238 mm., (outer feathers 113 mm. shorter). Primaries: 2nd longest, 3rd 6 mm. shorter, 4th 24 mm. shorter, 5th 46 mm. shorter.

The specimen was sent to Mr. E. Blezard who prepared the skin for inclusion in the Carlisle Museum collection. He has informed me that the bird was a male, with its gonads hardly enlarged beyond the winter condition. The stomach was crammed with a mass of coarse grass—probably Marram Grass (*Ammophila arenaria*) and the intestines of a small creature. It may be noted that a narrow belt of sand dunes covered with Marram Grass lies between the road and the shore.

This is the first example of the species to be obtained in spring in the faunal area of Lakeland. The skin is now in the Carlisle Museum. RALPH STOKOE.

CHAFFINCH USING SAME NEST FOR TWO BROODS.—Mr. George Brown tells us that the nest of a Chaffinch (*Fringilla cœlebs gengleri*) at Combe, Berkshire, was used successfully this year for two broods; the first fledged in early May, the second in June, 1947. There was a possibility, however, that the second clutch was laid by a different hen, as on one or two occasions two females were seen in an adjoining bush, and they were usually fighting or preparing to do so.

Mr. I. J. Ferguson Lees reports another case of a nest at Pease Pottage, Sussex, from which three young flew in the second week of May, 1947. On May 27th it was found that the nest had been relined and contained another clutch of four eggs.

VARIETIES OF BRITISH ROBIN.—Mr. A. G. Parsons records a Robin (*Erithacus rubecula melophilus*) with orange breast about the size of a shilling, fairly sharply demarcated from the deep grey lower breast and flanks. The bird was present in the grounds of the Pinderfields Hospital, Wakefield, Yorkshire, in January and February, 1947. Similar specimens have been noted (*antea*, p. 179, Vol. xxxix, pp.281, 375).

SONG-PERIOD OF HEDGE-SPARROW.—Mr. P. F. Yeo informs us that the Hedge-Sparrow (*Prunella modularis occidentalis*) was recorded in daily song from September 4th-21st, 1944, in North Wales. *The Handbook* chart indicates exceptional song for the first half, and irregular song for the second half of September.

"UP-ENDING" OF COOT.—We are indebted to Mr. D. Charlwood for bringing to notice the "up-ending" of Coots (*Fulica a. atra*). This habit is not infrequent where the birds are feeding in shallow water, but it does not appear to have been previously recorded, nor is it mentioned in *The Handbook*.

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NOTES ON SAND-MARTINS

BY

JOHN TOOBY.

In view of the recent notes on the display of the Sand-Martin (*Riparia r. riparia*) by A. Watson (*antea*, Vol. xxxix, p. 282) and A. S. Thom (*antea*, p. 20) the following notes may be of interest. My observations were made between 1942 and 1945 along the rivers Severn and Teme in west Worcestershire. Sand-Martins breed in colonies, averaging about nine nests in each, at intervals along these rivers. The banks vary both in composition and in height ; for the most part they are composed of alluvium, silt and (mainly rather fine) sand. They are generally around 12 feet high and are covered in many places with grass and weeds.

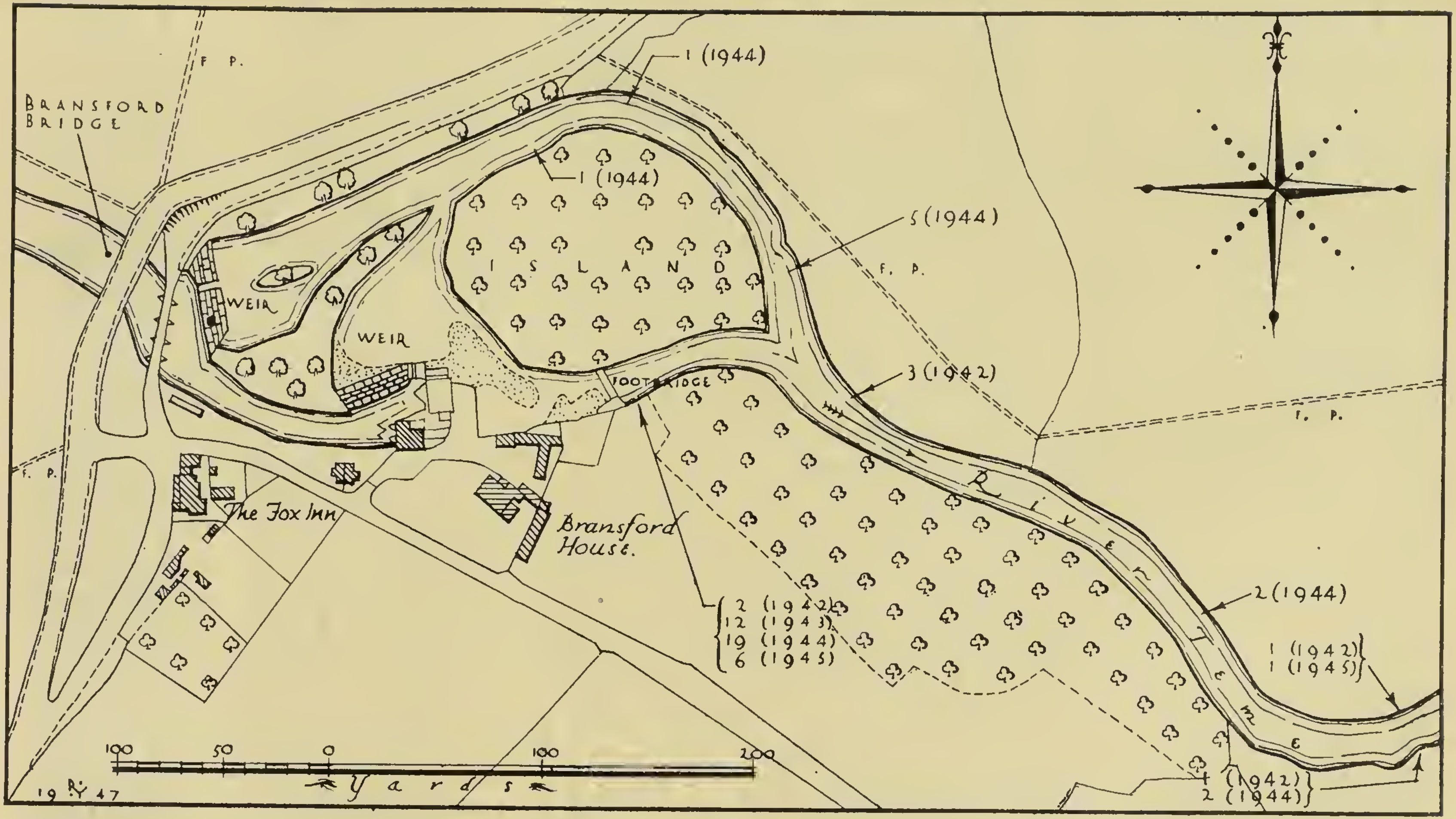
Distribution.

Results of a rough census made for the Birmingham Bird Club in 1942, and repeat counts over a wider area in 1943 and 1944 showed that while the total numbers remained much the same, there was considerable local fluctuation. An estimate amounting to 25% of the total covers the inaccessible nests.

Total estimated number of nests.

		Number of Colonies.	*Number of Nests*		
			1942	1943	1944
Severn :	Upton Bridge to Worcester Bridge (*c.* 10 miles)...	6	31	11	31
Teme :	mouth to Ham Bridge (*c.* 15 miles)... ...	25	264	273	222
	Total (*c.* 25 miles)	31	295	284	253
Severn :	Worcester Bridge to Stourport Bridge (*c.* 10 miles)	8	—	31	50
Teme :	Ham Bridge to Stanford Bridge (*c.* 4 miles)...	7	—	94	110
	Total (*c.* 39 miles)	46	—	409	413

My detailed figures show that in 1943 and 1944 more than a third of the nesting-sites occupied by more than a third of the birds were ones not occupied the previous year. This is at any rate partly due



Map showing numbers of Sand-Martins' nests on a portion of the River Teme in 1942, 1943, 1944 and 1945 (see p. 292).

to fresh falls in the banks, which provide attractive sites. Old sites may be used after the lapse of a year. Colonies, however, tend to persist in about the same places. They are usually made up of two or more separate compact groups of nests ; it is these groups which may be found in fresh sites in different years. The sketch-map illustrates the changes at a colony on the Teme for which I also have the 1945 count. The figures refer to the number of nests found in the different sites in each year. There is a possible margin of error of one nest in 1942, 1944 and 1945. It will be seen that the colony increased from 7 nests in 1942 to 12 in 1943 and 30 in 1944 and then declined to 7 again in 1945.

Such fluctuations appear to be quite usual and it cannot be too strongly emphasized that they bear no relation to the status of the species as a whole.

Drainpipes are used in a few places, but gravel or sand-pits only irregularly. There is one colony in the Bunter Sandstone outcrop of the Redstone Rock near Stourport.

Even in the alluvial river-bank old holes are used occasionally, especially where the digging is hard. In such places the tunnels tend to be shorter and in rare extreme cases are reduced to a mere opening into the nesting-chamber which may be easily accessible to the hand. Holes are sometimes crooked ; usually there is no obvious reason for this, but I found one case where a large pebble, exposed at the end of the straight beginning of a tunnel, had evidently caused a sharp diversion to the left. A. E. Jolley and R. Storer (*Leicester Lit. and Phil. Soc.: Ornithol. Sect. for Leicestershire and Rutland, County Report of Wild Birds for* 1944, pp. 10-21) do not mention crooked holes and state (*in litt.*) that they found by experiment that birds formed the nesting-chamber when they met an obstruction. This would explain the shorter holes referred to above, but evidently there are exceptions.

ARRIVAL.

A few birds are usually seen in the last days of March, but the spring passage drags on until at least the middle of May. The time of arrival of the main body varies widely and appears to depend on the weather. In 1943 the largest number of *migrating* birds was seen on May 12th and 13th. In 1944 the main body arrived in mid-April. Migrants appear to be attracted to possible nesting-sites, and particularly to the vicinity of existing colonies. They visit sites on the bank which may, but will not necessarily, be used for nesting later.

VOICE.

An alarm-note "tsee-er" or "tsee-ip" does not seem to have been recorded. It is similar to that of the House-Martin (*Delichon u. urbica*), but typically much more creaky, lower in pitch and less shrill. It is evoked by the presence of a passing hawk or crow, or of a man above the nesting site.

COURTSHIP.

The most obvious features of the nuptial behaviour of the Sand-Martin are the communal hovering at the nesting-site and the sexual chase. Jolley and Storer (*ibid*) refer to "communal flighting" at the nesting-site "within which close chasing in pairs was observed." This flighting apparently includes the behaviour referred to in this paper as hovering. I give an instance below of a male hovering and then chasing a female; and it is obvious that in the very large colony they were studying both forms of behaviour would frequently be observed at the same time. In my experience I have always found the chases to be individual affairs and quite distinct from the communal hovering.

The initial difficulty is to find a point of difference between the sexes. Attention was at first directed to the sexual chase, during which song is persistently produced. Sand-Martins are not shy, and chasing pairs sometimes pass close enough to an observer for the singer to be distinguished with certainty. On thirty separate occasions this proved to be the pursuer; on none was it the leading bird. The inference that the singing bird is the male has been confirmed by all of my subsequent observations, notably where the singer adopted the male rôle in coition and when the pursuer attempted aerial coition. The pursuing male occasionally takes the lead for short periods during the chases and also when apparently inviting the hen to alight prior to coition or attempted coition on wires. The behaviour of the sexes would thus appear to differ, and in the account which follows sex has been inferred from behaviour. I feel fairly confident in this interpretation, but independent confirmation would seem to be desirable.

It is difficult to watch a particular pair of Sand-Martins satisfactorily in even a small colony, but I was fortunate enough to locate a solitary pair which nested in an old hole in 1945. Several pairs were nesting 100-150 yards away on the opposite bank. The sequence of events observed at this nest was as follows :—

May 27th.—Young fed at entrance.

June 1st.—Young on wing returning to hole (an early date).

June 2nd.—Hole examined, nest with lining of feathers ; a few droppings in tunnel.

June 6th.—Male constantly circling around, singing, and visiting the hole ; when a female flew as if towards the colony opposite, the male swerved towards her and pursued her in a close chase.

June 7th.—No sign of juveniles ; hole entered by an adult.

June 8th.—During two hours in the evening the male spent much of his time circling round, singing freely, and constantly returning almost to the hole and hovering opposite the entrance. Both male and female spent some time in the hole, but they were only there together for very short periods (two minutes or less). The male chased the female once after emerging from the hole after her, but returned alone after three minutes to resume his circling and hovering. On four other occasions the male left the female in the hole.

June 9th and 10th.—Behaviour of male as above ; communal hovering at nesting-site on opposite bank.

June 11th.—The pair taking part in prolonged sexual chases. They appeared after I had been waiting for a few minutes, the male singing and pursuing the female closely. They entered the hole, but emerged almost immediately to resume their chase. For the next hour and a half, sexual chases, lasting 10 to 15 minutes each, alternated with periods of about the same length which the birds spent together in the hole. The chases started with the female leading the male from the hole and continued until the birds returned to it with the male still in close pursuit. Though out of sight for some minutes at a time they always returned together.

June 12th.—Hole opened : three eggs in new nest of grasses with only one feather ; no droppings in tunnel. The nest had to be partly remade owing to a collapse of soil into it. The birds returned soon, but left again immediately.

June 13th.—Male singing, circling round and hovering opposite the hole, then chasing the female and apparently trying to lead her back to the hole, where he continued hovering. The female seemed to have deserted the hole.

June 18th.—Hole deserted ; three fleas at entrance.

Confirmation is needed, but this case suggests that the hovering may be an advertisement flight of the male Sand-Martin. It is normally communal, the presence of one bird hovering at a colony usually stimulating others to do the same beside it.

Summarizing many other observations on the sexual chase, it may be said that this is usually close and long-sustained ; chasing pairs may be seen up to about half a mile from the colonies. They are sometimes joined by a third bird, apparently an intruding male, since such birds adopt the rôle of the pursuer ; I have one record of an intruder which had been singing. More rarely groups of four birds may be seen. An incident which occurred in the evening of May 29th, 1945, is perhaps not unusual, but it suggests that such groups may at times include two males and two females. The male of one pair alighted on the wirework of a hop-yard ; the female alighted close by, whereupon the male flew towards her and hovered over her, evidently attempting coition. A second pair of chasing birds then flew towards the first pair as if to prevent coition and all four flew off close together in a group and disappeared. This incident also gives added point to repeated notes that the sexual chase appears to be an individual, not a communal form of behaviour. The male sings for much of the time. His aim seems to be to get above and as close as possible to the female ; she usually dodges when he approaches, but on two occasions the birds appeared to attempt aerial coition to the accompaniment of a harsh excited "jid-did-did" louder than the usual call or song. Apart from those recorded above I have many records of birds chasing one another into and out of holes. The possibility of coition in the nesting-chamber must therefore be considered. At times the male swerves away as the female enters.

I have a few records of coition on wires of various sorts, the participants having previously been indulging in sexual chase. For instance, on May 3rd, 1944, a pair alighted close together on the wirework of a hop-yard. Singing with increasing excitement the male sidled along the wire towards the female, sometimes shivering his wings as he did so. The female took flight, and the male flew off in pursuit ; but the pair soon returned almost to the same spot and the display was repeated. After a second short chase the female alighted again and the male alighted on her back. On June 17th, 1944, the leading bird (? sex) of a chasing pair flew with wings held in the form of a wide V close in front of its mate. Soon both alighted on a wire fence, and a sidling approach was followed by attempted coition. In such cases the male sometimes takes the lead for a yard or two before alighting, as if in invitation; the female does not always respond. On June 27th, 1943, a single pair behaved like Thom's birds of July 4th, 1946, displaying repeatedly at first on wire, but later in similar fashion while clinging to the vertical bank below.

Small pieces of mussel-shells found in a completed nest before egg-laying began are difficult to explain unless they have some ceremonial significance. Jolley and Storer (*in litt.*) state that some of their birds picked up what appeared to be small pieces of white stone.

POST-NESTING DISPERSAL.

The juveniles are not easy to distinguish from the adults in the field ; I have found the most useful character to be their *double* call-note, which is softer than that of the adult. At first also there is their uncertain behaviour. Where overhead wires are available the young birds spend much time on them ; the slight colour distinctions are of most use here. They may be fed on the wires or even in the air ; food appeared to be passed from bill to bill. Juveniles take part in chases, which may include three, four or even more birds, but which are less persistent than the sexual chases of the adults. When they return to the nesting-site they may hover about uncertainly before alighting on the vertical bank at or near the entrance to a hole not necessarily their own. In such cases there is much calling and I have heard song, so that adult birds may be influenced by their behaviour. When the young birds are stronger on the wing, parties may alight in a group almost anywhere on the river-banks, usually at or near a nesting-site, but also at points some distance away. In the afternoon of June 24th, 1944, for example, 18 birds, including both adults and juveniles were on and around some overhead wires near the river-bank. Later the entire party visited the vertical bank below, birds repeatedly returning after short flights. When the bank was examined later, the merest beginnings of holes were seen. In the case of two birds watched, one alighted and clung to the bank ; when the second bird alighted close by, the first one turned its head and appeared to feed the other. Later in the afternoon, about a mile downstream, I could only count five birds where there were 25 nests and 15 inaccessible holes.

The juveniles appear to leave the vicinity of their colony soon after they become strong on the wing ; and some colonies where the birds are predominantly single-brooded are almost entirely deserted even early in July. It seems hard to resist the conclusion that in such cases old and young birds leave together. There is much variation in this respect between different colonies ; certainly many, possibly most, birds along these rivers are single-brooded.

A curious feature of colonies where many birds have departed is the presence of fleas at the entrances to the holes (see note under *June 18th*). Experiment showed that fleas jumped on to any object that was held reasonably close. Often up to a dozen or so were at one hole. It seems possible that after the departure of the occupants, fleas wait at the entrance of the tunnel ready to attach themselves to any bird which may alight there. It is of interest that Jolley and Storer (*ibid*), who gave considerable attention to external parasites, only found fleas on a few birds and suggested that about 20% were infested. They found no fleas in the tunnels, although the species was apparently the same.

Birds are leaving the nesting-sites in decreasing numbers through July and August, and a few late broods remain in the nest until September.

I have never seen the large autumn flocks referred to by your contributors, although they occur in the Avon valley in the south of the county.

SUMMARY.

The results of a rough survey of Sand-Martin colonies in west Worcestershire showed that, although there was considerable local fluctuation, the Sand-Martin population appeared to be fairly stable over the whole area.

The dates of arrival at, and departure from the nesting colonies vary widely. Birds are arriving from the end of March until at

least the middle of May. Departures appear to begin at the end of June and continue until early September. Many birds seem to be single-brooded.

Part of the courtship of a pair of Sand-Martins from a solitary nest is described. The hovering of the singing male at the nesting-site suggests an advertisement flight. There is a vigorous, close and long-sustained sexual chase ; here too the pursuing male sings freely. Sexual chase may be followed by coition, which I have seen only on wires.

The behaviour of the juveniles raises interesting questions and the whole subject deserves much fuller study than I am now able to give.

SOME NOTES ON THE SPECTACLED WARBLER IN THE MALTESE ISLANDS

BY

JOHN GIBB.

Opportunity for Observation.

From September 1941 until July 1945, I was stationed in Malta and was able to devote much of my spare time to studying the bird-life of the islands. Malta, together with the sister isles of Gozo, Comino and Filfla, is primarily of interest to the ornithologist as a migrant station, for its breeding species are few. Among these few the Spectacled Warbler (*Sylvia c. conspicillata*) is prominent.

Throughout my stay in the islands I was most concerned with keeping note of the shifting bird population, but it was inevitable that I should at the same time gain a closer acquaintance with the Spectacled Warbler than with any other single species. In the early spring of 1945, before the main influx of passage migrants was due, a slightly more intensive study and census of the species was made in order to fill some of the gaps in my previous notes. I was fortunate in having the valued company and co-operation of Mr. D. A. Slight, of the Malta Command Signals, during the latter period.

Status, Distribution and Habitat.

The Spectacled Warbler is a sedentary resident on Malta, Gozo and Comino Is. I was unable to visit the rocky islet of Filfla, lying three miles to the south of Malta, which can scarcely boast sufficient cover even for this species; Wright (1863) did not find it there.

Schembri (1843) first recorded the Spectacled Warbler in Malta as arriving in March and leaving again in September ; a summer visitor. Some 20 years later, however, Wright (1864) described the species as being the only warbler that was a constant resident, and Despott (1916) agreed with this. (Despott inexplicably omits the Spectacled Warbler from his list in the *Ibis*, 1917). Mackay (1899) has evidently confused the present species with the Whitethroat (*Sylvia c. communis*) when he says of the latter that he "frequently found their nests"; in fact his notes are so full of inaccuracies that none can be taken seriously.

I found no evidence of migration whatsoever, and numbers appeared constant throughout the year. This is perhaps the more curious as the Spectacled Warbler is migratory in Spain (Jourdain, 1937), France (Mayaud, 1936), Southern Italy and Sicily (Arrigoni degli Oddi, 1929) and even, to some extent, in Tunisia (Whitaker, 1905) ; there is also evidence of migration in Algeria (Ticehurst and Whistler, 1938).

No matter where one may go about the Maltese islands one is bound to meet the Spectacled Warbler. It is as well at home along the rugged cliffs of the south-west coastline as in a thistle-patch in the corner of a flat field in the centre of the island. I found it on the rocky wastes at 800 ft. and on the ancient bastions of Valletta city itself. In fact the rougher and less cultivated the ground, the better it fares: for the bird shuns the few places on Malta where trees abound, notably in the Boschetto and the St. Anton Gardens —but this is not typical Maltese country.

Yet the species is far from catholic in its tastes. It demands a very specialized breeding ground, which Malta can provide abundantly for it. It requires an open uncultivated patch with just enough low cover for the nest, no more and no less, Whether this patch be surrounded by cultivated land, barren acres of rock or by city buildings, as in Valletta, matters not at all.

It is interesting to compare this Malta habitat with that elsewhere in the range of the Spectacled Warbler. It is common in Egypt on the scrubby desert fringing the Delta (Meinertzhagen, 1922). In the Camargue (Alexander *et al.*, 1933, Glegg, 1931 and Yeates, 1943) it is almost exclusively a bird of the *Salicornia* scrub; in Sicily (Whitaker, 1905) it is confined to the higher mountain districts. In Tunisia (Whitaker, 1905) it is apparently common on the semi-desert plains and on the inland salt-marshes, whilst in some parts of the regency it is a common garden bird. South of the Atlas mountains it frequents the low patches of *Thymelæa hirsuta* scrub where this gives way to the Saharan sands (Heim de Balsac, 1924, 1926, 1936) and breeds in *Zizyphus* scrub in Algeria and Morocco (Jourdain, unpub. and Lynes, 1925). It penetrates into the valleys and on to the open plateaux between Ghardaia and Zirara, some 350-400 miles due south of Algiers. In the Cape Verde Is. (Bannerman, 1939) *S. c. orbitalis* is found from sea-level to the mountain tops; here it favours acacia and other thickets and nests as high as 7 ft. from the ground. In the Canary Is. (Bannerman, 1922) the vertical range of its habitat extends from the semi-desert belt of the Maritime Zone up to 6,000 ft.; though showing a preference for the *Euphorbia* shrubs of the former.

FIELD CHARACTERISTICS AND GENERAL HABITS.

Out of the migration season there can be no mistaking the Spectacled Warbler in Malta. No other resident species, summer or winter visitor can be confused with it, and the much greyer Sardinian Warbler (*Sylvia m. melanocephala*) is the only other resident warbler. In the migration season confusion is perhaps most likely with the Whitethroat, but the Spectacled is redder on the wing coverts and this alone is always adequate for identification purposes. The white eye-rim from which the bird gets its name is difficult to detect under field conditions. The sexes are generally similar, but may be distinguished in a good light. In the breeding season especially the male is appreciably brighter and smarter than the female, but the differences are purely comparative. Juveniles resemble the female.

The birds are usually seen in pairs and remain together in one restricted locality all the year round. In Malta there is no suggestion of the winter flocking recorded for *S. c. orbitalis* in the Cape Verde Is. by Bannerman (1939). Although capable of skulking behaviour at times and adept at disappearing into the absolute minimum of cover, the Spectacled Warbler is by no means secretive. They often pause in their activities to sing a brief phrase or scold an intruder, standing conspicuously erect with upcocked tail. Flight is low and direct except in the early breeding-season, when longer and higher excursions are taken. The birds feed in short vegetation, along the rough stone walls and on the ground ; I have seen insects taken on the wing.

VOICE.

Notes are an high-pitched "tseet," used continually at all times, especially in company ; and a scolding churr. This varies from a full-throated angry churr, rasping and metallic, down to a soft subdued mutter in mild annoyance, often used when preoccupied with more important business.

The song is a sweet exhilarating warble of short duration, quickly repeated ; not stereotyped. It resembles that of the Sardinian Warbler, but is less raucous. It is sweetest when sung with slow deliberation and quickly deteriorates in excitement as more squeaky notes are introduced. It is delivered from a prominent minor feature or occasionally early in the breeding-season from tree-tops up to about 20 ft. There is also the hovering or planing flight-song in spring, which is more hurried and less musical.

Regular song is from the end of January, though a spell of warm weather may produce good song some weeks earlier. It continues unabated until the first eggs are hatched, thereafter diminishing gradually ; by June it is almost silent. Autumn song begins in September and is a half-hearted affair. The sub-song is a soft faint echo of the normal song, uttered with closed bill.

DISPLAY AND POSTURING.

Song flight. The bird rises from the ground or higher perch quickly and silently to about 30 ft., and then slowly descends singing with rapidly beating wings and fanned tail. Sometimes it rises no more than 6-10 ft., planing to the ground at a gentle incline as it sings.

In anger or excitement the male alternates the scolding churr with outbursts of furious song ; the feathers of the crown are raised to an appreciable crest, wings drooped and tail cocked at an acute angle.

Courtship. The following procedure was noted once in March, 1945. The female was first seen sitting hunched and dishevelled in a low fig tree, whilst the male excitedly hopped from twig to twig within 18 ins., always keeping to the rear and slightly above the female. This continued for two or three minutes ; the male dancing about behind and above the female as if manœuvring for an attack, but the female paying little apparent regard. The male eventually attempted to mount the female, but without success, for the latter immediately flew off a short distance to a stranded wire fence. The male followed closely and alighted on the strand above the female, then sang softly for a few moments. The female again flew off followed by the male and out of my sight.

"*Injury-feigning.*" (a) By female, when flushed from the nest at advanced stages of incubation and with young. An agitated flapping progress with broadly fanned tail for 2-5 yards over the ground.

(b) By male, coaxing a snake away from young recently fledged. The bird lamely hopped and fluttered a couple of feet in front of the snake ; silent. When I interrupted the snake made off and the warbler altered its tactics to curse me roundly, churring and singing.

(*c*) By male, luring a cat from the young, which were in the process of leaving the nest. The bird fluttered slowly over the ground, attracting the attention of the cat with a slight churring ; then, when the latter gave chase, it half-flew and half-fluttered away until the cat was only two or three feet behind in headlong pursuit. It only left the ground at the very last moment, flying uncertainly a couple of yards ahead. The ruse was abandoned after the cat had been lured some 40 yards from the young.

BREEDING.

Nest site. The vast majority of nests were within a foot of the ground ; some on it, and a very few as high as 2ft. 6ins. They are built in any low thick vegetation, matted grass, thistles and small dense shrubs.

Nest construction The nest is similar to that of the Whitethroat and considerably less robust than that of the Sardinian Warbler. It is surprising to read that nests south of the Atlas Mountains are apparently more substantial. Heim de Balsac (1924) particularly remarks on their solidity, saying that they differ in this respect from the other breeding warblers of that area, *Sylvia h. hortensis*, *S. a. atricapilla* and *S. m. melanocephala*; Salvin (1859), on the other hand, described a nest from the same district as "loose but neat." The outer framework of dried bents, rootlets and old leaves (especially skeleton thistle leaves of the previous years' growth) is followed by a layer of soft down; a final loose lining of fine roots and a little hair is added.

Both sexes build, the female taking the greater part in the later stages of the first nest at any rate. In April, 1945, I watched one male building a second nest while the female fed the young, which had flown from the first five days before : I cannot say if this was later used. The male sometimes builds "cock's nests."

Construction of the first nest of the season is a casual affair and, if disturbed, the birds may stop work and disappear completely for an hour or so, allowing the nest to be inspected without a note in protest. Its building takes up to a fortnight, and two or three days may elapse between the completion of the nest and the laying of the first egg. I have no data for subsequent nests.

Eggs. Eggs are laid one per day. The ground is dull white with greenish-brown, occasionally reddish-brown, fine spots zoned at both ends. Some are lightly spotted, others densely covered.

In Malta the normal clutch-size is five; of nineteen clutches found sixteen were of five, two of four and one (a very late clutch completed on June 1st) of three eggs. Five seems to be the usual clutch from Spain also; the seven clutches recorded by the late F. C. R. Jourdain (unpublished) are all of five. But in the Atlas Mountains "eggs in one nest seldom exceed four" (Salvin, 1859). Of nine clutches of *S. c. orbitalis* from Tenerife two were of five, five of four and two of three eggs (Koenig, 1890), and Boyd Alexander found four more commonly than five there; a clutch of six is also reported from the Canaries (Bannerman, 1939). Thus there is some indication of the latitude trend for clutch-size "to increase from the tropics outwards towards the poles" (Lack, 1947).

Breeding-season. From March to June. In 1942 the first eggs were laid in five nests watched on March 3rd, 4th, 5th (2) and 11th. In 1945 the dates for nine nests were March 6th, 7th, 9th, 11th, 14th, 19th, 20th, 22nd and 23rd. The species is normally double-brooded. The last date recorded for the laying of a first egg in a clutch was May 30th (1944). These late nests are probably "repeats" although genuine third broods may well occur.

In south Tunisia (Whitaker, 1905) breeding begins from mid- to end of March, and considerably later in the north. Bannerman (1922) found eggs of *S. c. orbitalis* in the Canary Is. from March 7th to May 5th.

Incubation. Is by both sexes. Period 13 days ± 6 hours for first broods in March (two cases), and 12 days ± 6 hours for a second or possibly third brood in June. Period reckoned from laying to hatching of the last egg. I believe incubation normally begins with the laying of the last egg, but have twice flushed a female from the warm eggs of an incomplete clutch : once off three eggs and once off four eggs of clutches later completed to five. Writing of *S. c. orbitalis*, Reid (1887) oddly notes, ". . . .the birds sitting very close, even before incubation had commenced."

Fledging. Young are fed by both parent birds ; food is brought in the bill. Period 12 days ± 12 hours (two cases), reckoned from hatching of last egg to last young leaving the nest. In one instance recorded young of the last brood of the season were being fed three weeks after leaving the nest.

Nest sanitation. Excreta are carried 15-20 yards from the nest, which is kept clean throughout the fledging period.

Breeding ecology. In late February the winter visitors are beginning to leave and the bird population of the islands is steadily declining owing to their departure. But this is only a transitional period, for the sudden impact of the spring passage migration hits Malta in the last week of March*. In the first fortnight of April the bird density is at its peak, and this coincides with the most luxuriant stage in the growth of the indigenous herbaceous plants and shrubs as well as with the hatching of the first broods of the Spectacled Warbler. In the latter half of April the sun scorches the landscape to a browner shade ; the formerly crimson fields of flowering *sulla* (*Hedysarum coronarium*) are now cut and stooked, grasses withered and wheat ready for harvesting.

The ecological conditions under which the Spectacled Warbler must rear its second brood thus differ enormously from those of its first. The brief super-abundance of early spring and its competition with a variety of insectivorous passage migrants is contrasted with a semi-desert of parched soil and shimmering rock. The transformation is completed in a couple of weeks just when most pairs of Spectacled Warblers are in the initial stages of their second broods. The migrants have now dwindled away and the only other breeding species with an overlapping habitat are the resident Corn-Bunting (*Emberiza calandra*), the Short-toed Lark (*Calandrella b. brachydactyla*), a summer visitor arriving at the end of March, and the Sardinian Warbler, which keeps more strictly to the shade of the carob, fig and citrus-fruit trees.

POPULATION AND TERRITORY.

These two aspects in the life of the Spectacled Warbler were studied concurrently from mid-February to mid-April, 1945, in the same restricted area.

Description of area. Work was begun in mid-February on an area of approximately 100 acres. This comprised two short *wieds* joined at their lowest point and containing a broad spur of cultivated land in the angle between them. The highest point above Mean Sea Level was 300 ft. and the lowest 100 ft. There were two main factors governing the choice of this area : it had to be easily accessible and as nearly typical of Maltese country-side as possible.

The cultivated spur was divided by stone walling into narrow terraced fields with, here and there, rock outcrops interspersed with coarse grasses, thistle, small shrubs, prickly-pear and stunted carob and fig trees. The crops were wheat, *sulla*, broad beans, field pea, potato, tomato and other mixed vegetables. In the *wied* bottoms there was a little rough pasture, but it was mostly rocky uncultivated ground.

Census. This area contained 14 pairs of Spectacled Warblers, of which nine were centered directly on the *wieds*, and, by way of comparison, 12 pairs of Sardinians. The density for the area as a whole was therefore one pair of breeding birds to approximately seven acres. The census was taken over a period of six weeks and includes breeding birds only. Owing to the open nature of the country it was found a comparatively simple matter to locate and keep track of these sedentary birds.

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*For arrival dates see *antea*, pp. 71-78.

Territory. This was loosely defined except in the steep and sheltered *wied* running north and south, where pairs were closest; there alone was it possible to trace the limits for each pair with any precision.

Territory disputes were still of daily occurrence in mid-February, but the *status quo* had been restored with the start of actual breeding in early March. I arrived on the scene probably a month too late to see the initial boundaries being decided.

The male advertised its territorial claims from vantage points around the territory, and trespassers, both neighbouring pairs and man, were greeted alike with aggressive song. If song proved an inadequate threat to other Spectacled Warblers, which was seldom, they were driven off without further ceremony. Two pairs, whose nests were but 15 yards apart, lived on the friendliest of relations and were seen to feed in company ; yet there was continual friction between two other pairs whose nests were separated by a full 75 yards. Other species were tolerated within the territory, and in fact those of the Spectacled and Sardinian often overlapped. I once watched a Spectacled Warbler harry an intruding cock Sardinian from the immediate vicinity of its nest.

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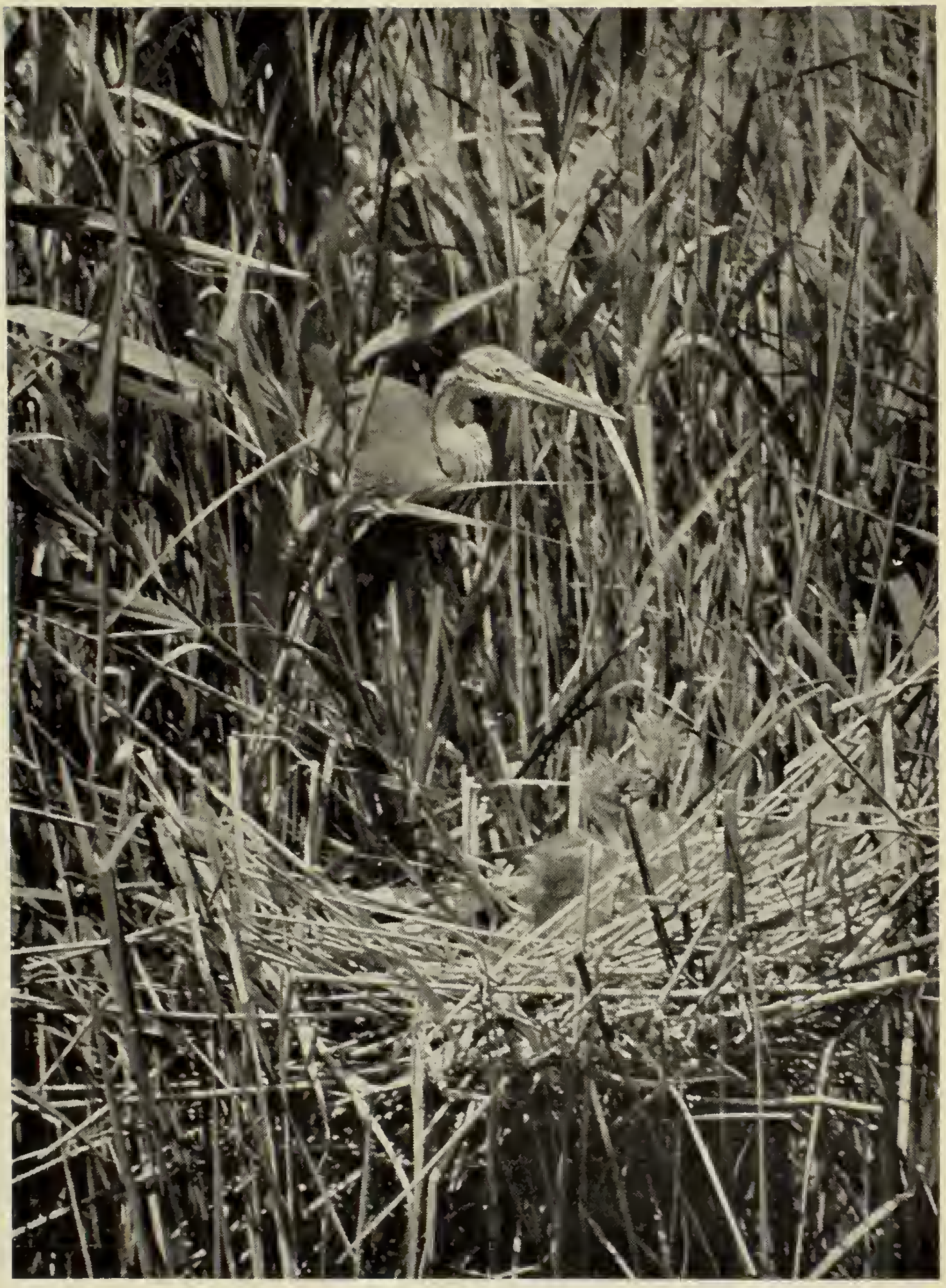
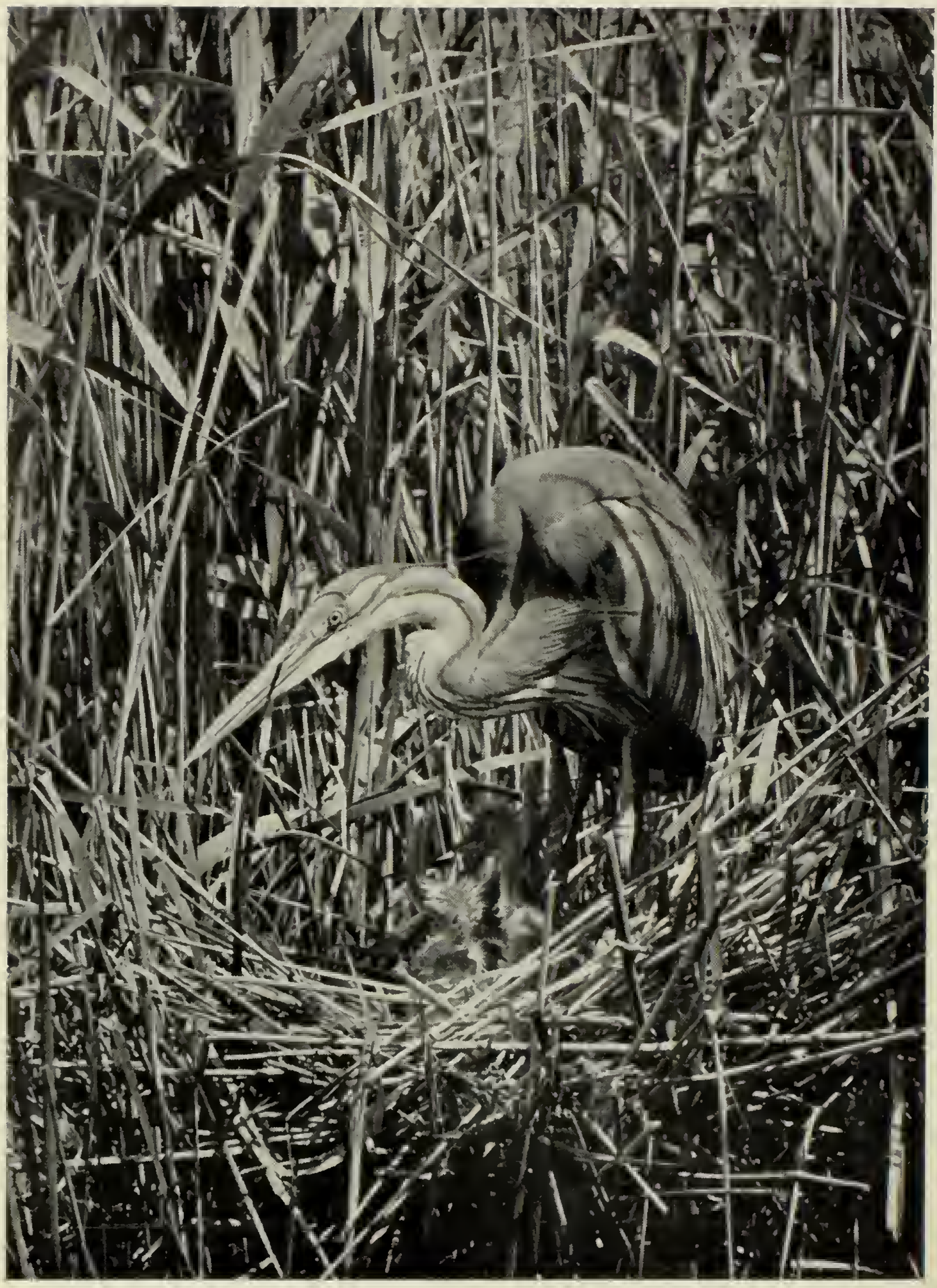


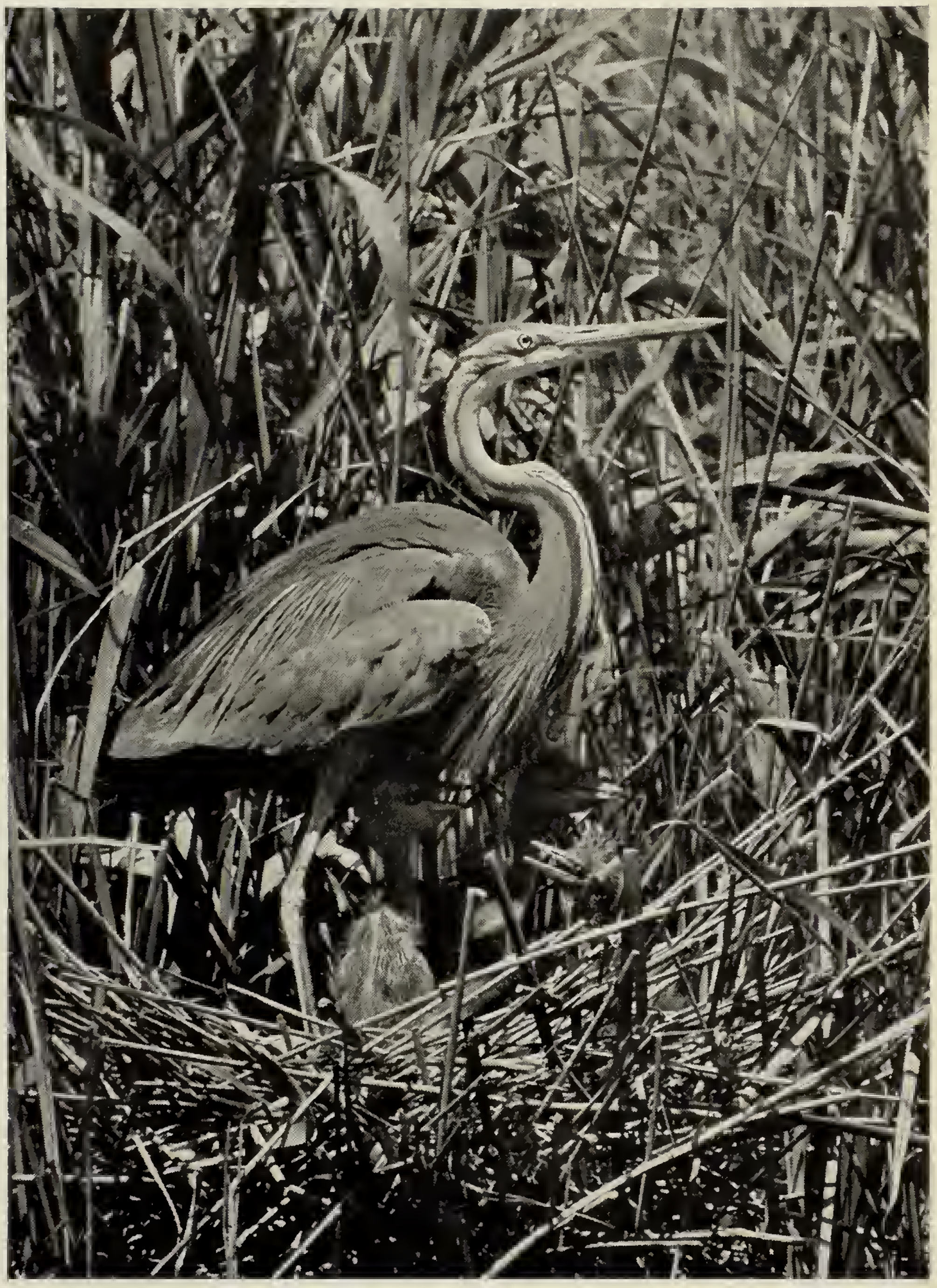
Purple Heron (*Ardea p. purpurea*) coming on to nest through reeds: Camargue, May, 1947.

(*Photographed by* H. A. Patrick).

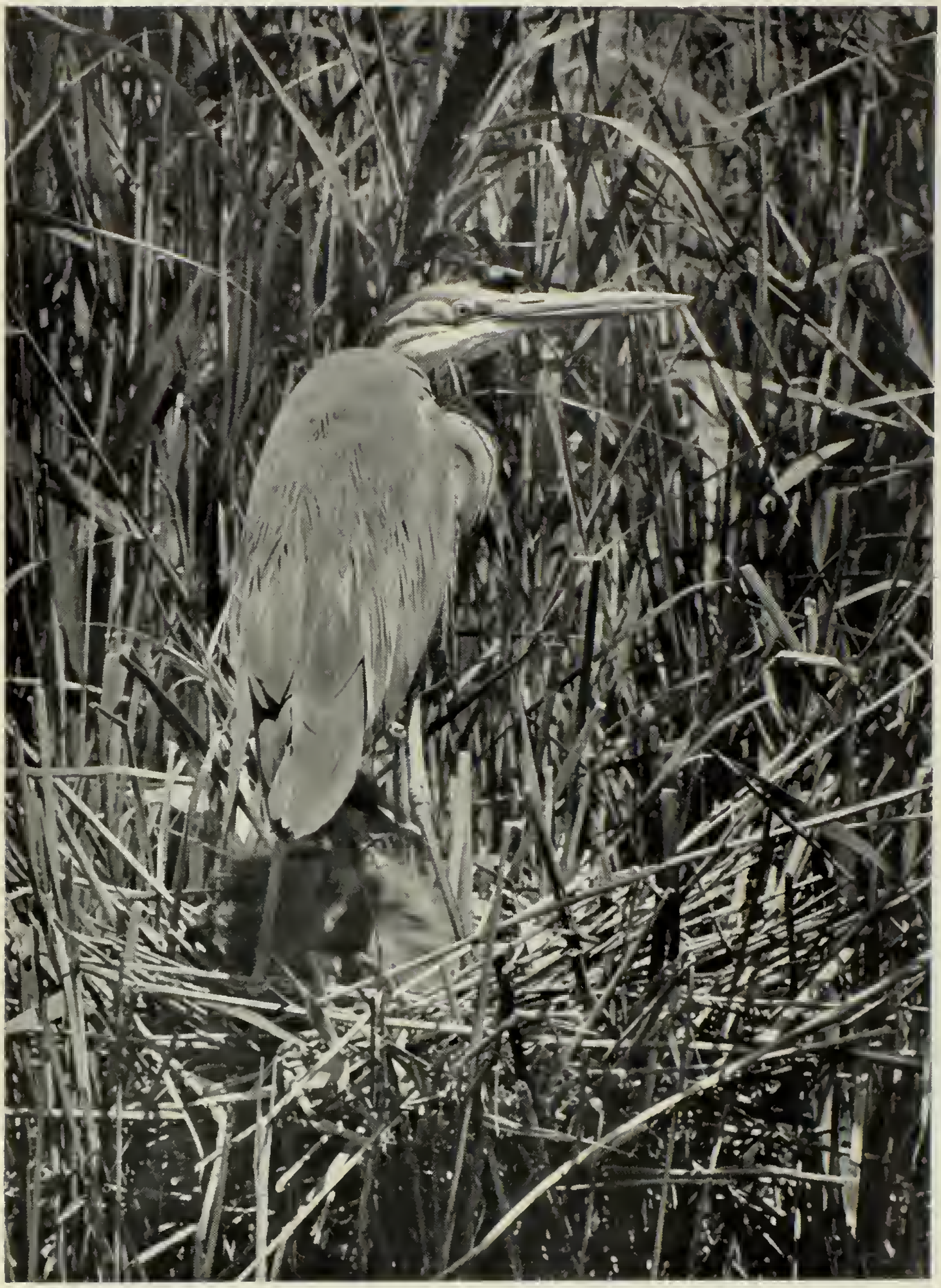


Purple Heron (*Ardea p. purpurea*) at nest, preparing to regurgitate : Camargue, May, 1947.

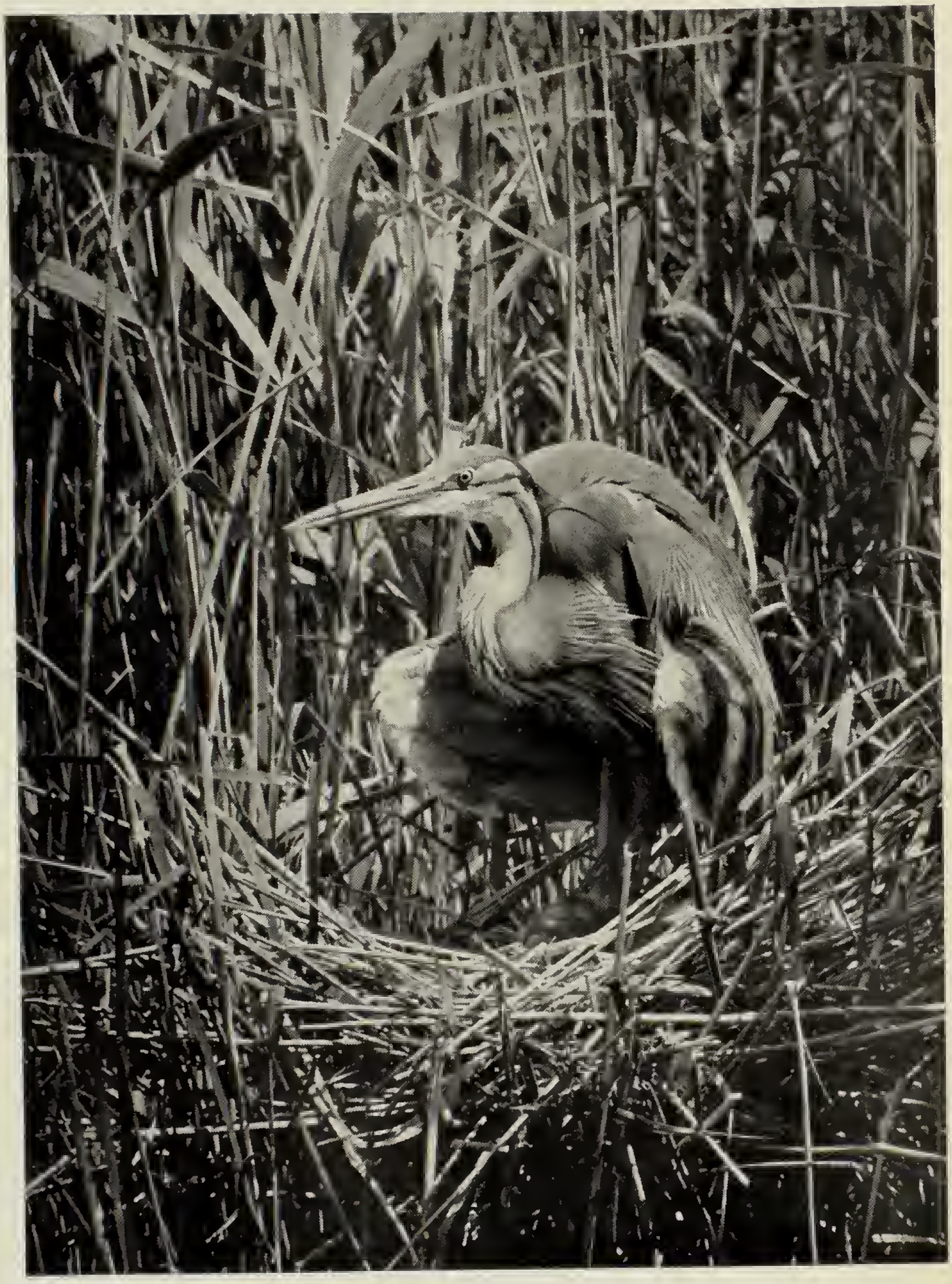
(*Photographed by* G. K. Yeates).



Purple Heron (*Ardea p. purpurea*) at nest:
Camargue, June, 1947.
(*Photographed by* W. E. Higham).

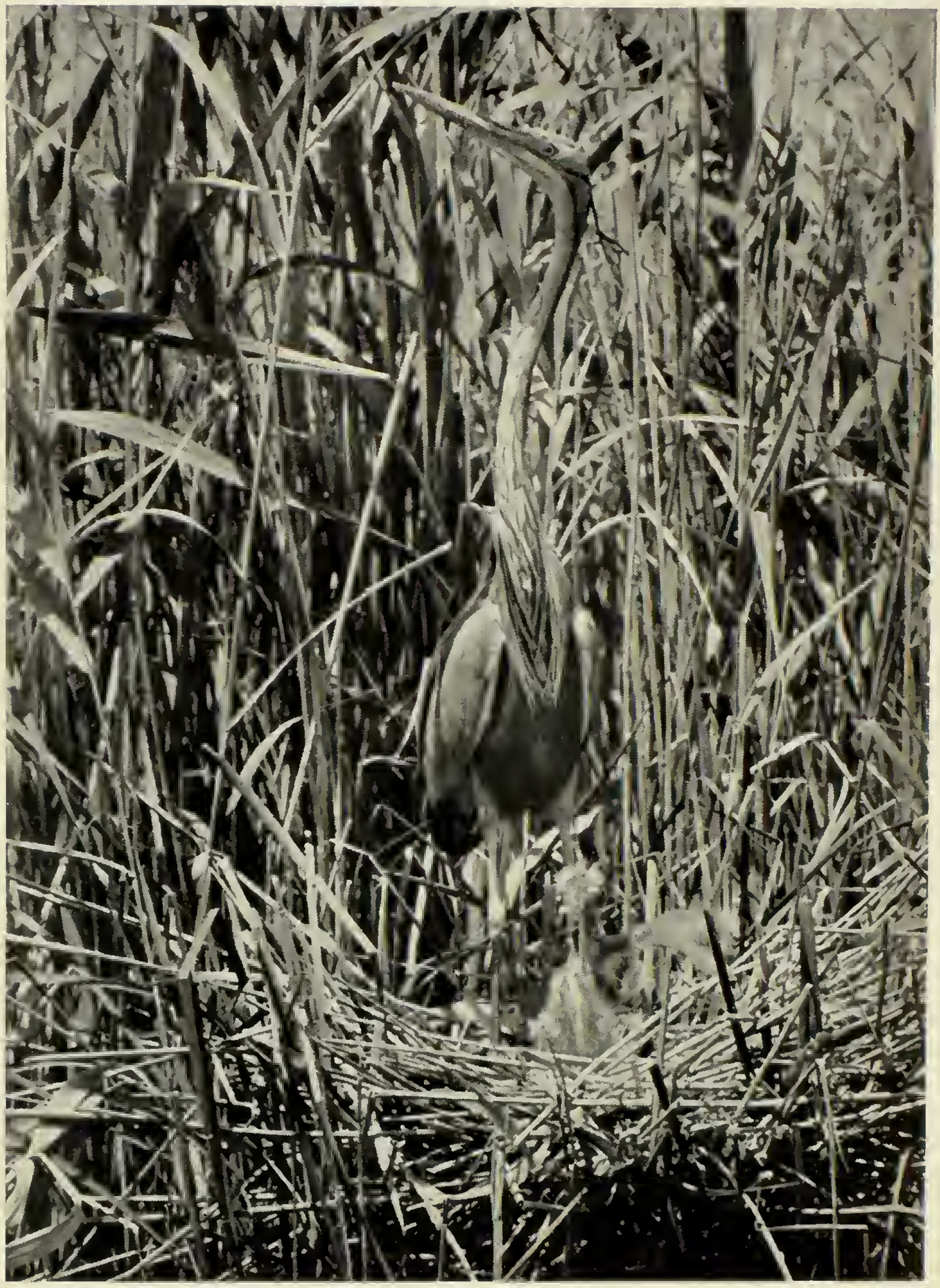


Purple Heron (*Ardea p. purpurea*) at nest:
Camargue, June, 1947.
(*Photographed by* W. E. Higham).



PURPLE HERON (*Ardea p. purpurea*) SHIELDING YOUNG FROM SUN: CAMARGUE, MAY, 1947.

(*Photographed by* G. K. Yeates).



Purple Heron (*Ardea p. purpurea*). with neck at full stretch: Camargue, May, 1947. The male, coming to relieve the female at the nest, is in the reeds above.

(*Photographed by H. A. Patrick*).

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STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED

X. THE PURPLE HERON.

Photographed by
W. E. HIGHAM, H. A. PATRICK AND G. K. YEATES.

(Plates 26-31).

THE striking series of photographs of the Purple Heron (*Ardea p. purpurea*) now published, were taken in the district of the Camargue (Rhone Delta) in May and June of the present year, 1947.

This species is characteristically a reed-bed nester, building on, or close to the ground in extensive reed-beds or on low bushes of *Salix* amongst the reeds and, so far as Western Europe is concerned, only exceptionally in trees, though the Eastern race, *A. p. manilensis*, breeds in trees not infrequently.

The photographs show well the darker plumage, as compared with the Common Heron, and the characteristically striped neck. It is a somewhat smaller and more slightly built bird than that species, and Plate 31 shows particularly well the slender and "snaky" appearance of the head and neck when the latter is extended. In flight the Purple Heron is easily distinguished from the common species not only by the darker colouring but by its different outline ; there is a distinct concavity where the base of the neck joins the breast, giving a characteristic "hollow-chested" appearance, and the very long toes, adapted to movement in swampy localities and amongst reeds, can be distinguished at a considerable distance. The wing-beats are slightly, but distinctly, quicker than those of the larger bird.

Considering that it breeds in some numbers as close to Britain as Holland the Purple Heron is surprisingly rare as a visitor to this country, the total number of recorded occurrences in the British Isles being less than a hundred.

The photographs show one of the birds approaching the nest and several characteristic positions at the nest. In Plate 27 the parent is preparing to regurgitate food for the young. Plates 28 and 29 are views from different aspects of the typical "on-guard" attitude, and in Plate 30, the parent is shielding the young from strong sunlight. The interesting expectant attitude figured in Plate 31, already referred to, was assumed preparatory to nest-relief. The relieving bird is approaching in the reeds above the bird at the nest and outside the picture. The normal method of approach to the nest was always by walking through the reeds (*cf.* Plate 26), but on two occasions when the change-over was observed the relieving bird perched high up in the reeds and climbed down to the nest when its mate had left. B.W.T.

NOTES.

CALLS OF GOLDEN ORIOLE.

On June 22nd, 1947, in a wood just outside Calais, I had a good view of a male Golden Oriole (*Oriolus o. oriolus*), sitting in sunlight on a bare twig of a lombardy poplar, about 30 feet from the ground. It called continuously for about eight minutes. The call started with a metallic click with the bill closed and then, immediately, a hiss, lasting about three seconds, with the bill widely opened. The hiss sounded like something between the noise of air escaping fast from a tyre, and that of tearing cloth. In the middle of the period, it gave one hoarse cackle like a domestic hen after laying. At the end of the period, a female flew out of a tree near by, and the male flew off with her. I am sure that the call was not an alarm note. The male, while calling, was sitting quite still and the final flight away was unhurried. I was watching from a well concealed position, and made no noise or sudden movement. The call did not resemble the alarm note described in *The Handbook*. The click was sharper and less resonant than the noise of drawing a cork, and the hiss was neither harsh nor rattling. H. G. Brownlow.

COURTSHIP FEEDING OF GREENFINCH AND SONG OF FEMALE.

On July 8th, 1947, at 19.30 hours, G.M.T., I was attracted by the persistent twittering of a pair of Greenfinches (*Chloris ch. chloris*) in a Scots pine close to our house at Aylsham, Norfolk.

As I approached the female flew up from the tip of a lower branch to where the male was perched. She crouched with shivering wings and coition took place without any preliminary display by the male. Then, still shivering her wings and piping like a fledgling, the female received eight deliveries of food in rapid succession apparently from the crop of the male ; she then returned to her original position and settled on a nest which I had not previously noticed. It is possible there may have been young in the nest at the time, as I heard them calling from it a few days later.

The male flew away and the female began a deep, slow, halting song from the nest which strongly reminded me of the song of a Bullfinch (*Pyrrhula p. nesa*). This continued for about half a minute. The song of the female may have been similar to that described by Mr. Ferguson Lees (*antea*, Vol. xxxviii, p. 244), but I heard no quickening into a final twitter.

I also recorded courtship feeding here on May 8th, 1947, but did not then observe coition. R. A. Richardson.

On May 31st, 1947, I watched courtship feeding of Greenfinches (*Chloris ch. chloris*) in the garden of Haggs Castle, Glasgow. A hen was perched in a tree when a cock flew up with a small object in its bill. The hen crouched and with half-opened shivering wings accepted food from the cock. Afterwards both birds flew away together. It is most improbable that the fed bird was a juvenile, as the first young Greenfinches seen this year in the vicinity were fledged on June 10th, 1947. D. SUMMERS-SMITH.

[Other instances of courtship feeding in the Greenfinch have been recorded in *Brit. Birds*, Vol. xvii, pp. 223-4 and Vol. xxxix, pp. 212-3, 314.—EDS.]

CONTINENTAL CHAFFINCH AND GOLDCREST IN LANCASHIRE.

A FIRST-winter male of the Continental race of Chaffinch (*Fringilla c. cœlebs*) taken from a small flock feeding in sycamores near Burnley, Lancashire, on November 3rd, 1946, would seem to be worthy of mention on account of the paucity of records from this region. Few actual specimens of this form have been identified from western areas of Great Britain, but ringing records show that it has a fairly wide distribution in these islands as a winter visitor.

An adult male of the Continental race of the Goldcrest (*Regulus r. regulus*) obtained to the north of Burnley, Lancashire, on November 3rd, 1946, would appear to be the first record for the county.

Although general as a winter visitor to east and south-east areas of Britain, this race is less frequently met with in the west.

P. A. CLANCEY.

SEXUAL BEHAVIOUR OF HOUSE-SPARROW.

ON JULY 19th, 1947, a few days after reading the interesting account of a male House-Sparrow (*Passer d. domesticus*) pecking at a female's cloaca (*antea*, p. 212), I observed a repetition of this behaviour in my garden at Hitchin, Herts.

My attention was first directed towards a dozen or so House-Sparrows noisily squabbling in a small tree overhanging my garden wall. Two males and a female alighted on the adjacent path and one of the males commenced to peck at the female's cloaca. The female slightly raised her tail during the performance, but I saw no actual spinning movement on the part of the female, who remained passive the whole time. The pecking lasted for approximately thirty seconds, when the male attempted coition without success.

After the female had made off the male remained on the ground and quivered his wings with a rapid motion and raised them above his back. The second male bird stood about a foot away from the pair, but took no part in the proceedings.

I would add that although I have frequently watched the sexual display of House-Sparrows, this is the first occasion I have witnessed this particular behaviour. CHARLES H. COOKE.

DISPLAY OF HOUSE-SPARROW.

COITIONAL DISPLAY.—The following description of the coitional display of the House-Sparrow (*Passer d. domesticus*) is based on a number of observations made at Morden, Surrey, and differs in some details from that in *The Handbook.*

The stages might be summarized as follows:—

1. Commonly, at any rate, it is the male which calls, a twittering rather high-pitched, continuous "tee-tee-tee . . . . . ." which does not appear to be used at any other time. This note is used at the start and is continued during the mountings and the intervals between them.

2. Often the male hops quickly towards the female along a branch or roof. This seems to be a part of the display, for, when it reaches the hen, if coition does not take place, the male may go back and start the "run-up" again and then be successful.

3. The female adopts a crouching posture with tail a little depressed and wings shivering slightly. The hen at this stage is undoubtedly often silent; in fact, a twittering call from the female was not definitely heard on any occasion when the bird calling could be determined with certainty.

4. The male mounts, fluttering his wings the while and calling as in paragraph 1. This may be performed 10-11 times in rapid succession, the cock sometimes merely stepping momentarily on the back of the hen. The male continues to call and to attempt to mount, but after a variable number of mounts the female turns on him aggressively, pecks at him and may then chirp loudly and drive him off.

5. Once (April 17th, 1946) after a few mounts only, the male put his bill against that of the female and appeared to feed her, but it is uncertain if any food was transferred.

6. On another occasion (June 1st, 1947, at Shalfleet, Isle of Wight), the male, after one momentary mounting of the female, dropped beside her and pecked once lightly at her cloaca. Then the male mounted again, also only momentarily. Then the two separated.

7. At another time it was observed that twice while the male was mounted on the female he pecked several times at her nape.

8. Coition is frequently followed by immediate preening by male or both birds.

COMMUNAL DISPLAY.—On June 21st, 1946, one of the communal noisy displays was noted in which two males were hopping about excitedly before a female "with loud chirpings and elevated bill and tail and drooping wings." Both males pecked at the cloaca of the female, which pecked vigorously back at them. This is noted in *The Handbook* as having been only once recorded [*cf.* also *antea*, p. 212 and Mr. Cooke's record above, and Vol. xxxviii, p. 296.—EDS.]

As is mentioned in *The Handbook* the female often becomes much excited in these displays and in the course of the usual vigorous pecking at the males, I have observed one seize the tail of a male as it flew from one twig to another in front of her and hold it so that the cock was hanging by its tail for about 10 seconds. Similarly elsewhere a male was seized by the top of his head and likewise hung suspended for a few moments. G. BEVEN.

"INJURY-FEIGNING" OF MEADOW-PIPIT.

To the two notes under this heading by Major R. F. Ruttledge and Mr. K. G. Spencer (*antea*, pp. 20, 177) I can add the following case. On June 23rd, 1947, I flushed a Meadow-Pipit (*Anthus pratensis*) from a grassy bank ; she flew close to the ground for a yard or two and then seemed to tumble over herself, recovered and stood still for a few moments before flying off. Her behaviour left no doubt in my mind that I had flushed her from a nest, and not merely surprised her among the grass : on investigation I found a nest with four eggs. On July 7th, I again flushed the bird, which was then brooding four young. She fluttered off the nest for a yard or two and then, with partly extended wings, seemed to half fly, half run along the bare ground, assisted in some measure by the wind. This second performance was of a much more convincing nature, but both, as Mr. K. G. Spencer remarks of this bird, were of very short duration. PETER L. DAY.

ROOSTING BEHAVIOUR OF LONG-TAILED TITS.

I CAN confirm D. B. Grubb's account (*antea*, Vol. xxxviii, p. 54) of the roosting of Long-tailed Tits (*Ægithalos caudatus rosaceus*). On December 24th, 1944, in dull but by no means cold weather, I found a party of five just before dusk in the hedge of one of the Severn meadows at Powick, near Worcester. In the next 10 minutes they worked their way to the rough hedges of a neighbouring green lane. They were now quite silent, very close together, and not nearly so active as before. Then all of them flew for a few yards down the lane and entered a bramble-patch (16.25, G.M.T.). I was now able to watch them at about six feet. Two of them were perched side by side on a stem about four feet six inches from the ground in the middle of the bramble-patch, which was about six feet high. The two birds shuffled backwards and forwards, now facing one way, now the other, but always keeping close together. When they had finally settled down a third bird dropped down between them and the shuffling was repeated. Finally, the other two joined them and more similar shuffling followed, accompanied now by a few quiet "tupp" notes. The birds were now perched close together in a row along the bramble stem. Everything was quiet for a few moments ; then a Blackbird arrived on the other side of the bramble-bush and started "spink-ing." One of the Long-tailed Tits flew towards the Blackbird, using the churring "tsirrrp" note and drove it off. The other tits had separated, but soon settled down again on a branch about six inches above the original position. The valiant one waited in the old position while the rest shuffled about for a short time and then joined the party. There was a little more movement before all was quiet (16.40, G.M.T.). It was now almost dark ; as far as I was able to see, however, the birds were now roosting with heads together and tails outside. JOHN TOOBY.

NORTHERN WILLOW-WARBLER IN BERKSHIRE.

COL. W. A. PAYN has recently sent me two Willow-Warblers for opinion. These two birds are both males, the one was collected on April 20th, 1933, at Combe, and the second on May 11th, 1936, at Medgham.

I have compared both birds with series of the typical race and with *Phylloscopus trochilus acredula* from South Russia.

Both the Berkshire specimens match the latter in being of a dull greyish green on the upper-parts, in having whitish superciliary stripes, in lacking any appreciable greenish-yellow on the breasts, and are, I consider, referable to *P. t. acredula*. These would appear to be the first Berkshire examples. JAMES M. HARRISON.

THE CONTINENTAL HEDGE-SPARROW IN THE BRITISH ISLES, WITH SPECIAL REFERENCE TO KENT.

THERE have been comparatively few records of the Continental Hedge-Sparrow (*Prunella m. modularis*) for the British Isles (*The Handbook of British Birds*, Vol. ii, pp. 208, 209). These records relate mostly to the northern half and to the east coast. It therefore seems desirable to add to the above some further instances which have come to my notice.

During 26 years' residence in Kent I have paid some considerable attention to this species in that county, and, from a consideration of an ample material, I have come to the conclusion that the typical race is by no means uncommon. I would, indeed, estimate that between the autumn and the spring approximately one in three of Kentish Hedge-Sparrows belongs to that race or is an intermediate. The position in the county is, however, not a simple issue as to the presence of the typical race as a passage migrant and winter visitor, for on the evidence of specimens it would appear that the Continental bird has bred on several occasions, notably in the years 1932, 1933, 1934 and 1936. In an actual pair which I examined in May, 1933, the male is according to its wing formula an example of *P. m. occidentalis*, and the female, again by wing formula, *P. m. modularis*. There was a soft, fully formed egg in the oviduct.

As might be expected from this I have found a number of individuals in Kent with anomalous wing structure, either rather indeterminate, or with the formula of the one race on one side, and that of the other form on the other side. I do not think that colour is a reliable character for racial distinction as a rule, and of course many such examples as just described will be found of intermediate make-up in that respect. The position of this species is indeed very similar to that of the Robin, *Erithacus rubecula*, in Kent (*vide A Handlist of the Birds of Sevenoaks*, pp. 67-70, 1942, and Lack, *Bull. B.O.C.*, 66, pp. 58, 59). An exactly parallel state is evident in the case of *Parus major*, as I have demonstrated elsewhere (*Bull. B.O.C.*, 66, pp. 24-28).

From Lincolnshire I am now in a position to record three examples ; a male obtained on December 6th, 1935, another in which the sex was indeterminate, on December 7th of the same year, both from Northcotes, and another male from the same place on January 14th, 1938.

I would here call attention to an example recorded by Jeffery G. Harrison (*Handbook of the Birds of the Malvern District*, p. 25, 1941) which is the first example from Worcestershire, and was obtained at Malvern on February 5th, 1939.

From the above and from previous records it is apparent that the Continental race occurs not uncommonly over a wide front of our eastern sea-board, that it has on occasions bred, and that birds of an intermediate character are met with. JAMES M. HARRISON.

FLEDGING-PERIOD OF BRITISH HEDGE-SPARROW.

A PAIR of British Hedge-Sparrows (*Prunella modularis occidentalis*) has reared a second brood this year (1947) in a nest in my garden at Porlock. On July 1st the nest contained four young about 1-2 days old ; they did not leave the nest till some time between noon and 9.30 p.m. (D.S.T.) on July 19th. *The Handbook*, Vol. ii, p. 211, gives the fledging period as about 12 days, but 11, 13 and 15 days recorded. These fledglings must have remained in the nest for 19 or 20 days. E. W. HENDY.

[We think this case must be highly exceptional, but it is very desirable that such variations from the normal, when well authenticated, should be recorded.—EDS.]

GREAT SPOTTED WOODPECKER DRUMMING ON WIRE.

IN May, 1947, I spent many hours walking in the woodlands in the Kleefeld area, just west of Hanover. On several occasions my attention was attracted by a most peculiar metallic rattle, which I had never before heard in nature.

I spent some time trying to track the noise down, but it always stopped before I could catch up with it. However, one day, as I was sitting quietly at the spot from which I thought the noise emanated, a Great Spotted Woodpecker (*Dryobates major pinetorum*) suddenly flew across and alighted on a vertical post around which some thick galvanized wire had been twisted.

Almost at once the secret was out, for the bird commenced drumming on a single strand of wire about 5 mm. in diameter, which stood about 3 cm. clear of the post. Furthermore this proved to be a favourite spot, as subsequently I saw the bird there on repeated occasions. R. P. PARKHURST.

DISPLAYING CUCKOO PICKING UP LEAVES, ETC.

On May 2nd, 1947, in a garden at Fordham, Cambs., a hen Cuckoo (*Cuculus c. canorus*) appeared and sat quietly on a branch. A male arrived, called and postured and then flew down to the lawn. He hopped about picking up dead leaves (Turkey Oak) until he had three or four in his beak. He next dropped these and began picking up acorn cups of the same tree. Three were picked up and dropped; with a fourth he flew to a branch near the female and sat swaying with drooped wings, holding the cup by its edge in the tip of his beak. Finally he dropped it, called and flew to the female. A chase ensued.

Such behaviour in the Cuckoo appears to be very rare, the only at all comparable record being that of Chance (1922), who observed a female trailing a straw from her beak during a sexual chase.

Possibly this behaviour should be classified with the haphazard fiddling during emotional stress that Selous claimed to be the origin of nest building, though in the present case the bird's movements were quite deliberate and not at all frenzied. In some other, non-parasitic, species similar activities might be regarded as the substitution of one normal form of behaviour for another which had been blocked. In the Cuckoo the substitute activity would then be an atavism, an interesting relic of a nest-building ancestry. This explanation has some support in the rarity of the occurrence.

G. V. T. Matthews.

[We do not think that there are any very good grounds for regarding objects picked up by birds in situations of emotional stress, such as display, as *necessarily* "representing" nest material in any way, though in many cases they are doubtless rightly so considered. The explanation tentatively offered by the recorder is, of course, possible, but we think it unlikely, and the argument is weakened by the fact that leaves are not a typical nesting-material and acorn-cups still less so. Even Guillemots will pick up and toy with straws and the like from old sea-birds' nests, but it seems highly improbable that this is an "atavism".—Eds.]

TAWNY OWL KILLING MAGPIE.

I have just received from Mr. J. Riley a first-hand description of a Tawny Owl (*Strix aluco sylvatica*) actually being found in the act of plucking a Magpie (*Pica p. pica*), which was not dead. This incident happened at Gawthorpe, near Burnley, Lancs., on February 12th, 1947.

I can find no reference to Tawny Owls killing Magpies, but evidently the extremely cold weather had something to do with the occurrence.

P. A. Clancey.

HERON FEEDING BY PROBING UNDER WATER.

On March 6th, 1947, near Wakefield, Yorkshire, I watched a Common Heron (*Ardea c. cinerea*) probing with its bill in the muddy bed of a small stream in which the water varied from about three to six inches in depth. Snow was still lying to a depth of six inches. The Heron was working in the shallower parts of the stream for the most part, and was seen to capture a frog by this method.

I have never before seen a Heron feeding in this manner, nor does this habit appear to have been recorded. A. G. PARSONS.

NIGHT-HERON ALIGHTING ON WATER AND SWIMMING.

ALTHOUGH the habit of alighting on water—too deep to wade in—and swimming, is well known in the Common Heron (*Ardea c. cinerea*), there does not appear to be any record of this habit for the Night-Heron (*Nycticorax n. nycticorax*). It might, therefore, be of interest to report, that I have on a few occasions observed this habit in Egypt.

On July 1st, 1945, on a lake at Giza, Egypt, I was surprised to see an adult Night-Heron resting buoyantly on the water, and occasionally swimming a few feet. When resting, the waves frequently took this bird backwards, and sometimes in circles. Frequently the head was lowered, so that the tip of the bill touched the water, and it would stay in this position for a considerable time before raising it to an almost horizontal position.

On the same day, another adult Night-Heron was observed trying to settle in bushes on a small island in the centre of the lake. Most of the branches were already occupied by roosting Night-Herons and Little Egrets (*Egretta g. garzetta*), and when this bird was about to settle on a branch overhanging the water, a roosting Night-Heron stabbed at it with its bill, forcing it off the branch and into the water. It immediately started to swim to another branch drooping into the water 6-7 feet away, and clambered up this.

On July 9th, 1945, I observed an adult Night-Heron leave the nest, situated in the top of a large tree on the edge of the lake, and settle in the centre ; it stayed there for about one minute before flying back to the nest. During its stay on the water I could see no attempt to drink. I am almost sure this nest contained eggs and not young, and it is possible the sitting bird required moisture for the eggs. It was a hot day, and the maximum recorded temperature in shade was 102°F. C. A. WHITE.

CORMORANT'S METHOD OF EATING EELS.

THERE seems to be little recorded information as to a Cormorant's method of eating eels, so the following note may be of interest.

On November 24th, 1946, I was sitting in a car with Mr. R. C. Roe, parked close to the edge of the "Old Clay Pit Ponds," near Minehead, Somerset. A Cormorant (*Phalacrocorax c. carbo*) flew down and commenced to dive within 35 yards of us. After the second dive it brought up a small eel, about 12 inches long, held crosswise in its beak. A series of vigorous shakings and worrying followed, and then the eel was swallowed head first, but could be plainly seen in the bird's neck. After swimming round for a short time, frequently stretching its neck forward, it made a very shallow dive, disgorged the eel while under water, and again surfaced holding it crosswise. This performance was repeated a second time, but after swallowing it a third time the bird seemed satisfied, flew off, and settled on a bank in the flooded marshes.

Returning 40 minutes later, it commenced to dive again, and finally surfaced with an eel about 18 inches long and correspondingly thick. Apart from longer periods of worrying, the second meal was exactly the same as the first, the eel being swallowed three times before the bird flew back to the marshes.

It would be interesting to know if this is the usual method, or whether our bird had a technique of its own. A. V. CORNISH.

IRREGULARITY OF HATCHING PERIOD IN WHIMBREL.

IN MOST wading birds of my acquaintance, the period of the actual hatching of each egg (i.e. from the first appearance of "starring," the first signs of cracking, to the emergence of the chick) is at the outside 48 hours, and in some species, e.g. Dotterel (*Eudromias morinellus*), I have known it as short as 17 hours. The following record of the hatching of a Whimbrel's (*Numenius ph. phæopus*) clutch is perhaps of some interest as showing that this period can vary widely.

A nest of four eggs was found in Shetland on June 16th, 1946. There was then no sign of "starring." At 10 a.m. on June 17th, three eggs were just "starred." On the 18th there was no change, except that a *very* small piece of shell had broken off one egg. The fourth egg had not yet cracked at all. On the 19th there was again no visible external change in the first three eggs, but the fourth was "starred." On June 20th two eggs showed considerable cracking, but no breaks were yet showing. The first beak came though at 1 p.m. and the second at 3 p.m. The third egg remained only badly cracked, and there was no change in the fourth. On the 21st there was no change that could be noticed until 5 p.m., when the first chick hatched, but the chick in the second egg was clearly dead, due, I think, to exceptionally heavy rain during the night of June 20th-21st. I was unable to visit the nest on the 22nd. On the 23rd the first chick was out of the nest and about 15 yards away ; the third chick was still wet and had clearly only been hatched for some three or four hours, and the fourth egg still only badly "holed." This fourth chick eventually emerged at mid-day.

Thus from the first appearance of "starring" to the emergence of the last chick a period of seven days ensued.

By contrast, the following is the record of one egg (of a final clutch of two) of a nest on the same ground found by Lt.-Col. Niall Rankin :—June 23rd, egg "starred" ; June 25th, large cavity in egg ; June 26th, 11 a.m., chick recently hatched and still wet ; 1 p.m., chick dry and more active ; 9.30 p.m., still in nest, but ready to move out. It was not possible to record the details of the second egg.

The weather in the first case was appalling, almost continuous rain until June 21st. There was very little rain during the period of hatching of the second bird.

My photographic activities had nothing to do with the prolonged period of the first Whimbrel. The bird in fact was so tame that it would return immediately to the nest with a human being standing at 12 yards from the eggs. G. K. YEATES.

[K. Williamson in the Faeroes (*North-Western Nat.*, Vol. xxi, 1946, pp. 167-184) found that a hatching-period of *c.* 45 to over 100 hours was not unusual and one case of *c.* 220 hours was recorded.—EDS.]

EARLY SPOTTED REDSHANK IN DEVON.

ON June 29th, 1947, while counting a flock of approximately 100 newly arrived Redshanks (*Tringa totanus britannica*) on the Exe estuary I was surprised to see two Spotted Redshanks (*Tringa erythropus*) in full breeding plumage among them. The characteristic features—jet black under-parts ; grey wings with no white stripe ; longer and slenderer bill than the Redshank ; longer legs which raised the birds noticeably higher off the mud than their companions, the toes protruding well behind the tail in flight—were all seen clearly. This is the first time I have seen this species in June and the date is fourteen days earlier than my previous earliest—July 13th, 1946. R. G. ADAMS.

KENTISH PLOVER IN NORTH KENT.

ON April 6th, 1947, Mr. E. M. Cawkell and I flushed a Kentish Plover (*Leucopolius a. alexandrinus*) from a spit of sand at the foot of the sea-wall near the mouth of the Thames. The bird was put up on several occasions and each time it returned to the same spot after short flights.

At rest, the white collar, forehead and stripes above the eyes, black legs and bill could be distinguished. In flight its light, sandy appearance and dark central tail-feathers contrasting with the light outer ones were noticeable characteristics. E. H. GILLHAM.

BLACK TERNS IN MAY, 1946, ON THE LAKE OF GENEVA.

IN *British Birds*, Vol. xl, p. 24, it is stated that exceptional numbers of Black Terns (*Chlidonias niger*) spread over England in May, 1946. In the same period a quite unusual flocking of terns was noted by several observers on the Lake of Geneva. On May 15th and 16th over a thousand Black Terns were to be seen near Geneva, and other groups were reported from the neighbourhood of Lausanne, so that very large flocks must have been on the Lake. From May 16th a rapid diminution took place, and none was observed after the 19th. At the same time we could see Whiskered Terns (*Chlidonias hybrida*) in the exceptional number of *ca.* 30, and a single White-winged Black Tern (*Chlidonias leucopterus*). Passage of the first species is regular in the middle of May, sometimes by hundreds, the second comes to observation almost every year, and the last is scarcer. From May 13th, the weather was very rainy with S.W. wind and cold, which may have stopped the migration of the terns. These observations were published in *Nos Oiseaux* (1946, pp. 187-188). It should be of interest for British ornithologists to know about these migrations in Switzerland and to compare the data. PAUL GÉROUDET.

LITTLE GULL IN NORTHAMPTONSHIRE.

ON May 20th, 1947, we clearly identified an immature Little Gull (*Larus minutus*) on Northampton Sewage Farm. The bird was observed closely as it fed, in the tern-like manner, some 30 yards distant. The following identification notes were taken :—Bill black, legs red, underwing completely white, prominent dark diagonal bar across wing from base to outer primaries, black spot behind ear coverts, dark speckled crown and nape, white tail with black subterminal bar, rest of plumage white.

When we compared the bird with a Black-headed Gull (*Larus r. ridibundus*) it appeared quite three inches smaller.

We again obtained good views of this small visitor on May 21st.

W. DRAGE, E. A. WARD AND K. A. HARDWICK.

BLACK-HEADED GULL BREEDING IN ISLE OF MAN.

THE first Manx record of the breeding of the Black-headed Gull (*Larus r. ridibundus*) was established by the discovery on June 19th, 1947, of a nest containing three eggs in a small mere in the north of the island. Three pairs of birds were present, and on June 29th a second nest, with three eggs, and a third, empty, were found. One of the eggs in the first nest had hatched in the meantime and one chick was present.

Until this year there has never been any suggestion of the birds breeding in the island, although the area is normally quite suitable, and birds are present in the island up to, and after, the breeding season. E. F. LADDS, W. S. COWIN.

GREAT BLACK-BACKED GULL DROPPING RAT.

ON March 5th, 1947, in a field near Itchenor, Sussex, we saw a Great Black-backed Gull (*Larus marinus*) dropping a rat from a height of about 20 feet and making unsuccessful attempts to swallow it. This was repeated six times in the few minutes we were able to watch, and each time the gull was unsuccessful in its efforts to swallow the rat. No mention of this habit, even with shell-fish, is made in *The Handbook*. D. D. HARBER AND M. JOHNS.

NOTE OF CORN-CRAKE.

THE growling mew note of the Corn-Crake (*Crex crex*) has been described as used only in display and combat (A. G. Mason in *The*

Handbook, Vol. v, p. 176), it may therefore be of interest to record its use also in other circumstances.

This year, 1947, a pair of Corn-Crakes bred in a wild part of our garden near Athenry, Co. Galway. On June 21st an adult and three downy chicks were seen in the rock-garden, whilst a fourth chick was left behind and had strayed into a flower-bed near by. The adult bird, as if realizing the absence of the fourth chick, suddenly left the rock-garden and came down to the open path, only five yards from where I stood; as it walked on to the path it uttered the growling mew three or four times in fairly quick succession, then paused on the path and called again three or four times.

The adult did not appear to see me at all, and the whole performance suggested only that the growling mew was directed towards the strayed chick; owing to the dense cover, I was unable to observe any response to the call. KATHLEEN GOUGH.

RED GROUSE SETTLING ON BUILDING.

DURING the early evening of March 11th, 1947, after several weeks of heavy snow and keen frost, I observed from a second-storey window of a house in Burnley, Lancs., a bird sitting on the roof of a church across the way. As the figure was silhouetted against a pale sky, few details of plumage were noted, but I nevertheless obtained good views of the outline of the body and shape of the head. The bird rose to its feet once or twice, and jerked its head uncertainly, as if undecided whether or not to descend.

The general appearance strongly suggested Red Grouse (*Lagopus s. scoticus*), but as I knew perching on buildings to be most unusual with this species (*The Handbook* makes no mention of it), and since the nearest grouse-moor is some three and a half miles distant, I still had doubts as to definite identification. However, very shortly the bird flew from the roof and away on the far side of the church, but fortunately came round in a wide arc, enabling me to note the decurved wings and characteristic whirring and skimming flight of the Red Grouse before it disappeared into the gloom.

An interesting sequel to this occurred on April 14th when I saw one leg and part of a wing of a Red Grouse hanging over the edge of the roof of the very house from which I had made my previous observations. My friend, Arthur Welch, and I, managed to get the bird down from the guttering, where it was firmly fixed and had apparently been so for some time. The remains (which were later examined by Messrs. C. Oakes and P. A. Clancey) were those of a hen Red Grouse, in all probability the same bird as that watched on March 11th, although on that date the grouse had flown off in a direction quite away from the roof where the body was found.

K. G. SPENCER.

HOOPOES IN ESSEX IN JANUARY.—Mr. H. R. Tutt informs us that three Hoopoes (*Upupa e. epops*) were seen by Major T. Loder of Rayleigh, Essex, on January 2nd, 1947, at Westcliff-on-Sea.

The birds were under observation for about half an hour ; they were reported a few days later from near Hadleigh, about two miles from where first seen. Major T. Loder is familiar with these birds and has studied them in Mediterranean countries.

ARCTIC SKUA ON HANTS COAST IN EARLY JULY.—Mr. Peter L. Day informs us that he has seen another Arctic Skua (*Stercorarius parasiticus*) of the dark form at Keyhaven, Hants., in mid-summer. The first was recorded (*antea*, Vol. xxxviii, p. 100) on June 28th, 1944, and the second at almost exactly the same spot, on July 7th, 1947.

REVIEWS.

More Birds of the Day. By Eric Hosking and Cyril Newberry. (Collins, London, 1946). 12*s* 6*d*. net.

The great popularity of the authors' *Birds of the Day* has led them to follow this up with a sequel providing a no less admirable picture gallery of British birds than the first. It has become almost superfluous in a review to praise the excellence of Messrs. Hosking's and Newberry's photographs and these are as good as ever. The 33 species illustrated are a well-mixed assortment of birds common and rare, including Rook, Twite, Crested Tit, Willow-Tit, Nightingale, Ring-Ouzel, Wryneck, Kingfisher, Hobby, Montagu's Harrier, Heron, Slavonian Grebe, Curlew, Stone-Curlew and Lapwing, to take a fair selection. There is also an excellent sequence illustrating the ejection of eggs from a Tree-Pipit's nest by a young Cuckoo and the interesting Slavonian Grebe series, including several striking postures of breeding birds, also deserves special mention : most of these last, but not all, have appeared previously in *British Birds* (Vol. xxxiii, pp. 170-173). To the numerous other photographs space does not permit reference in detail, but, speaking merely as a layman in photographic matters, we like particularly the rendering of the sober yet intricate pattern of the Wryneck's plumage, while the portrait of the Willow-Tit seems to us less successful than most : it does not bring out the special characteristics of the species to advantage. Another point, though a small one, which struck us in looking through the illustrations is that it is a pity that the photographs of several species of duck at the nest could not have been accompanied by others of the handsome and distinctive drakes.

As in all such books, the letterpress is subsidiary to the pictures, but the text is pleasantly written and informative at the popular level intended.

Bird Life in two Deltas. By G. K. Yeates. (Faber & Faber, Ltd., London, 1946) 15*s*. net.

In this book Mr. Yeates describes three trips to Southern Europe for the purpose of bird photography, one to Andalucia in company with the reviewer and Mr. H. J. R. Pease and two to the Camargue and its vicinity. The account takes the form of a transcript from the author's diaries, "altered only where the clipped style and the ungrammatical sentence of the diary would . . . have been irritating." The result is an extremely readable, interesting and entertaining book. It has all the vividness of the good field diary, which descriptions written up later seldom wholly recapture, as well as the minor shortcomings—as a permanent record—of accounts actually written during the course of a field trip. However, the minor slips which are inevitable under such conditions and the conclusions which access to sources of information not available at the time will modify, are in this case neither numerous nor of much importance, though it would have been worth the trouble to check and correct the spelling of some of the names of places and people.

Mr. Yeates has the gift of vivid description and the account of his experiences in the deltas of the Guadalquivir and the Rhône will raise pleasant memories in the minds of those who have visited these ornithological paradises and will fill many who have not had that good fortune with a desire to do so. The general character and "atmosphere" of the two regions are very successfully conveyed without technical details and the description of the day to day events—sometimes vexatious and often comic—incidental to bird trips in out-of-the-way places contributes to the lively and personal quality of the narrative, which will probably make these famous bird haunts more real to those who have not seen them than more elaborate and methodical accounts. The reader can share in some measure the author's thrill at the first sight of a flock of Flamingoes or of Black-winged Stilts from the hide or his exasperation at the "unspeakable mistral" tearing over the levels of the Camargue.

As we should expect in a book by Mr. Yeates the pictorial results of his expeditions are well represented by a series of outstanding photographs, including such notable species as Griffon Vulture, Subalpine, Spectacled and Fan-tailed Warblers, Penduline Tit, Hoopoe, Buff-backed and Night Herons and Little Egret. Altogether this is a first-rate book of its kind and might well stimulate the most stay-at-home ornithologist with a desire to widen his experience abroad.

Bird Haunts in Southern England. By G. K. Yeates. (Faber & Faber, Ltd., London, 1947). 15*s.* net.

In his latest book Mr. Yeates comes back, as it were, from the spectacular bird haunts of Southern Europe to the more homely charms of Southern England and its bird-life. Beginning with the Norfolk Broads, with their harriers, Bitterns and Bearded Tits—at any rate as gentle a transition from the Camargue as Great Britain can afford—he goes on to write of Crossbills on the Breck and Hobbies on Salisbury Plain, of the birds, both common and rare, of the heaths, pastures and woods of the south-west of England, and then of two more sharply characterized regions of the west, Sedgemoor and Exmoor.

This is not a systematic treatise and does not set out to be : it is a series of readable and pleasant sketches of the bird-life of several of the more interesting parts of Southern England, as the author has come to know it in the course of his experience as a photographer and observer of birds. The final chapter stands somewhat apart from the others and describes on a lighter note—not that any of the book is heavy—the successful accomplishment in an interval of military duties of "Operation Black Redstart," the photographing of Black Redstarts in the banned area of Lowestoft in May, 1944.

Mr. Yeates reckons himself a bird photographer first and foremost and in his preface he expresses his conviction that the photography of birds is a pursuit worth while in itself, stressing the element of excitement and sport that contribute so much to its fascination, in opposition to the attitude of some ornithologists who despise all forms of "birding" which are not materially advancing ornithological knowledge. His standpoint is one with which the reviewer, though he would presumably be classified as a scientific ornithologist, has the greatest possible sympathy, but in any case the ornithologist who produces such first-class results in his chosen field as Mr. Yeates's photographs has no need to feel apologetic.

But even if the author is a photographer primarily he is not of the type whose horizon is limited by the excitement of the chase or the technicalities of picture making. He has a pleasant enthusiasm for the charm of the English country and for birds as birds and writes effectively of both. Moreover his books are themselves sufficient testimony that in the pursuit of subjects for photography he can still keep his eyes open to observe. Of the photographs themselves we have spoken already and we need add no more than that in the present case they are of the standard we expect of him.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

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Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written *on the same sheet*. If more than one note is submitted each should be *on a separate sheet* with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and boldly drawn in Indian ink, with due allowance for reduction when necessary.

Photographs are accepted primarily as illustrations of papers or notes, but good prints of species rarely or not previously photographed or illustrating important points of habits, behaviour or field characters will also be considered on their own merits.

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CABINET COLOUR-CHANGES IN BIRD-SKINS AND THEIR BEARING ON RACIAL SEGREGATION

BY

REGINALD WAGSTAFFE AND KENNETH WILLIAMSON.

(The Yorkshire Museum).

In view of the present-day tendency towards the further subdivision, mainly on fine colour distinctions, of the accepted races of some British birds, we think it opportune to place on record some observations which have been made during the course of recent systematic work at the Yorkshire Museum.

During the extremely bitter winter weather of 1946-47 we received from supporters of the British Trust for Ornithology Study-material Service a large number of bird "casualties," and so had exceptional opportunities of critically examining fresh material in juxtaposition to cabinet specimens of varying age. We were surprised—and not a little dismayed—to find that in a number of cases the new material did not agree in plumage colouration with preserved specimens in our collection, and with other material which we had obtained on loan from various sources in this country and abroad.

Although the occurrence of post-mortem changes in the colours of bird and mammal specimens has been noted by other workers in this country and America, it is evident to us that the grave seriousness of its implications in systematic work has not been fully appreciated. Indeed, it would appear that some descriptions based on old skins have passed into literature ; and should further investigation show (as it may well do) that such changes occur on a widespread scale, the fact would call for a substantial reconsideration of much of the present-day technique of racial segregation.

These colour-changes, so far as our present experience indicates, seem to affect mainly shades of olive, brown, grey, red and the metallic greens and blues of some corvine and other birds. What causes these changes we do not at present know, but investigation of this all-important question, and a search for a method of preservation and storage which it is hoped will prevent such changes, are proceeding. Below we give a few observations on the species so far examined. The list does not pretend to be in any way exhaustive, but has been compiled from casual notes made during the intermittent examination of new specimens, and as a subsidiary outcome of systematic studies of the racial affinities of the Hooded Crow, Redwing, Rock-Pipit and others.

Hooded Crow (*Corvus cornix*). Over a period of time the grey of the mantle and underparts becomes suffused brownish ; the throat-feathers, which in the fresh specimen are deep blue with the merest indication of purple in certain lights, become entirely rich purple. Much the same alteration occurs to other portions which normally exhibit a deep blue or greenish gloss. A purplish throat is most noticeable in a 12 years' old specimen. These remarks are based on 18 fresh and 12 old specimens.

CARRION CROW (*Corvus corone*). Five fresh specimens exhibit a dark bluish-green gloss on the body-plumage, with only the faintest indication of the reddish-purple on mantle, back, rump and upper tail-coverts mentioned in *The Handbook*, Vol. 1, p. 16. In old specimens, however, the body-plumage approaches the reddish-purple of the Rook.

ROOK (*Corvus frugilegus*). The most stable of the corvine birds so far examined. There is no appreciable difference in the depth of the reddish-purple gloss between fresh and very old specimens, but the deep blue of head, nape and sides of neck eventually gives way to purple.

JACKDAW (*Corvus monedula*). Again, in old specimens the purplish (of which there is the merest suggestion in the scapulars and wing) becomes intensified.

CHOUGH (*Pyrrhocorax pyrrhocorax*). *The Handbook* plate (Vol. 1, f.p. 36) could be taken as a somewhat exaggerated representation of an aged skin. In the fresh specimen deep blue and green predominate over a suggestion of purple on upper and lower parts. In old specimens the green in the wings becomes less noticeable and the purple in the body-plumage greatly intensified.

BULLFINCH (*Pyrrhula pyrrhula*). In the male, the bluish tinge fades from the mantle, leaving it a decidedly paler grey. The pink of the breast becomes lighter.

ROCK-PIPIT (*Anthus spinoletta*). The whole bird becomes suffused yellowish in course of time.

WAXWING (*Bombycilla garrulus*). The marked greyish "bloom" fades in the course of a few years from both upper- and under-parts, leaving the feathers a dull reddish-brown. This change is so strongly marked that, during the 1946-47 invasion of these birds, the dissimilarity between birds in the field and museum specimens was noticed independently by two observers (Mr. E. W. Taylor of York and Mr. W. S. Cowin of the Isle of Man), neither of whom had any knowledge of cabinet colour changes.

Genus *Phylloscopus.* Cabinet changes are known to occur with age (*vide* C. B. Ticehurst, *A Systematic Review of the Genus Phylloscopus*, 1938), a fact which it is obviously important to bear in mind in the determination of specimens in this very critical group.

MISTLE-THRUSH (*Turdus viscivorus*). The mantle changes in time from grey-brown to pale yellowish-brown.

SONG-THRUSH (*Turdus ericetorum*). The greyish-olive tone of the upper-parts vanishes completely in the course of time, "foxing" to a rusty brown. This change becomes evident within a very few years, being noticeable in specimens dated 1937-38. *The Handbook* description, Vol. 2, p. 117, seems obviously to have been made from "foxed" skins.

REDWING (*Turdus musicus*). Although this is a variable species, it can be stated that the normally greyish-olive upper-parts "fox" to a rusty brown in the same way as in the Song-Thrush, and as quickly.

BLACKBIRD (*Turdus merula*). Cabinet changes occur in the skins of females, but we are unable to assess these accurately at present.

ROBIN (*Erithacus rubecula*). "Foxing" of the upper-parts occurs and the reddish-orange of the breast becomes yellower with age, this increasing the difficulty of separating *melophilus* and the typical race. The "foxing" in this species appears to be peculiarly inconsistent, for out of a number of specimens in the Backhouse collection no two are alike in the tone of the upper-parts. Our specimens show that it would be dangerous to draw any conclusions from comparison of skins more than a few years old.

RINGED PLOVER (*Charadrius hiaticula*). Owing to the lightening in colour of the upper-parts the two British forms, *hiaticula* and *tundræ*, cannot be distinguished with any certainty if old material is used.

We believe that the above list, brief though it is, shows that there is ample scope for thorough research not only among British birds, but embracing the birds of the whole world. It is a matter of such importance that we would like to see it made the subject of a full inquiry by some competent body of ornithological opinion, as, for instance, the B.O.U. List Committee, whose decisions on the validity of certain British races it may well affect. Meanwhile, it seems superfluous to emphasize the great need for extreme caution in comparative work which has as its object the determination or description of races founded on fine colour distinctions. Indeed, until these cabinet changes are more fully assessed and better understood, it would appear wise to insist that all new races based on other than structural characters should be discounted unless they are raised as the result of a careful comparison of entirely fresh material. It should be made incumbent upon all systematic workers to include full data of their comparative material in any new description.

Systematic technique receives a rude shock, for it is obvious that in a good many instances the significance not only of the time-hallowed holotype, but of all primary types, is greatly diminished. The claim that this, or that or the other, "has been compared with the type," can no longer be accepted as irrefutable evidence of the validity of any colour-differences observed. The types of some races, in which structural differences are not involved, may prove to have no longer any but historical importance. It is conceivable that the value of the type could be enhanced by a fully-documented label-description based on Ridgeway's colour standard, or better still, a mechanical assessment of the colour characters (if this is possible).

For all practical purposes, however, it seems that a greater significance must be attached to the type-locality than has been the case hitherto, for until these changes can be averted, the substitution of holotypes and paratypes in affected cases by fresh topotypical material at intervals of a few years, will become essential if reliable comparative work is to continue, and the fundamental tenets of taxonomic procedure upheld. The possibly widespread nature of these colour-changes not only may raise many complex and difficult questions in taxonomic procedure and nomenclature, but indicates—one must regretfully conclude—that much of the preserved material now in museum collections is so old as to be practically worthless for the exacting demands of the modern systematist.

It is sincerely to be hoped that this state of affairs will not herald a new age of slaughter. Indeed, there is absolutely no reason why it should, if a healthy co-operation between the field and museum worker can be achieved. The influx of bird "casualties" to the Yorkshire Museum since the inception of the Study-material Service (which was founded primarily to assist field-workers) has, in fact, shown us what magnificent use can be made of material that would otherwise have been wasted. Once again, therefore, we appeal to field workers to assist us to maintain the efficiency of the service (and, at the same time, help towards the solution of some of the problems outlined above) by forwarding to the Yorkshire Museum, York, all dead birds, even the commonest species, that they may find on their field excursions.

NOTES ON THE WINTER TERRITORY OF A PAIR OF MUTE SWANS

BY

D. J. MAY.

ALTHOUGH by nature Mute Swans (*Cygnus olor*) are aggressive birds, even in the breeding season they are found together, and are, according to *The Handbook*, "outside breeding season sociable and often seen in parties." Some (usually) fortnightly notes on the territory of a pair of Mute Swans over a period of three-and-a-half months—from mid-October to mid-February during the winter 1944-1945—may therefore be worth recording. These were made on Great Meadow Pond, Windsor Great Park, Berkshire ; a sheet of water approximately 28$\frac{3}{5}$ acres in area, and just over three-quarters of a mile in circumference.

There was no Mute Swan's nest on the pond in 1944, as there had been in the two previous years ; but at the end of June a female arrived. On subsequent visits I always found her there alone, feeding or swimming quietly and unobtrusively, until September 17th, when I arrived to see three swans swimming together. A week later—on September 24th—there were four birds, two males and two females, also swimming together with no sign of antagonism, except for a few minutes during which one male chased the other, flying for several hundred yards across the water. But on October 8th there were only two birds—a male and a female—and it is with these that the present notes are chiefly concerned. The female was in all probability the one which had been on the pond since June, and the male one of the later arrivals which had paired up with her and stayed—a good example of the typical autumn pairing of this species, in which the birds just meet and remain together.

On October 15th there were still only the two birds on the pond ; but on October 29th there were six—the original two and four newcomers—three adults and a bird still in half-brown plumage. The latter were not, however, being tolerated by the residents ; two or three times they were chased by the male—swimming swiftly with his head hunched between his arched wings—into a small corner.

On November 12th and November 26th the four intruders—presumably the same birds as before, for the cygnet was among them—were still there, bunched together in the same corner, while the residents were swimming in all parts of the pond without restriction. When I arrived on December 10th, however, the four intruders were some distance from their usual corner ; but the two residents took up the typical aggressive attitude and swam swiftly towards them until they retreated once more into the tiny space allotted to them.

December 31st, when I next visited the pond, was the eighth day of continuous frost, and only two small parts of the pond were unfrozen, at one of which there was a small party of Coots (*Fulica a. atra*) and Moorhens (*Gallinula ch. chloropus*), and at the other all the six swans. This incident was an excellent example of the suspension of territorial behaviour in very hard weather, mentioned by Lack as occurring also in the Robin (*Life of the Robin*, p. 107). While I was there, however, the four intruders flew up and disappeared, returning after a short while but not landing, and finally flying off to the north-east.

On January 7th the pond was still frozen, and although the two residents were there at the only small, unfrozen part, the four intruders were still absent. On January 21st, however, I was surprised to see them once more in their usual corner, the pond now being frozen only thinly and round the edges. Once they swam some distance out, but the resident pair, at the time on the far bank of the pond, stopped feeding, and, the male leading with his head sunk between his shoulders, swam swiftly towards them. They immediately turned and swam back to their corner, but were soon overtaken by the male resident who, although now in their "territory," chased them round in turn—without pecking them at all, however. Meanwhile the female had arrived, and soon afterwards her mate stopped annoying the intruders and swam over to her. The pair remained, feeding most of the time, just outside the intruders' corner for about half an hour, after which they swam away once more.

On February 4th, besides the usual pair swimming in the centre of the pond, there were but two other Mute Swans—confined, however, to the usual corner. Whether they were two of the original four intruders, or two other birds resting on migration, is uncertain ; but the cygnet at least had gone. In any case, they were the last intruders to be seen, for on February 18th and subsequently only the resident pair were present. These eventually nested—unsuccessfully, however, due to the activities of bird-nesters.

These notes give, then, an incomplete but fairly clear picture of the winter territorial behaviour of one pair of Mute Swans. It is certainly not typical of birds on the Thames, for instance ; but it seems unlikely that it was completely abnormal, and it is probable that when a pair of swans on a lake of about this size are encountered by (apparently) winter visitors, they do regard them as intruders, and either prevent them from staying or confine them to a small area. But that such a large territory is by no means necessary to them is shown by the four intruders themselves, who lived for $2\frac{1}{2}$ months on only $\frac{5}{6}$ of an acre of water.

Lack (*loc. cit.*) suggests that, in the Robin, winter territory is functionless and due to a partial recrudescence of the physiological state of spring. The same may apply in the present case.

THE TENDENCY OF BLACKBIRD AND SONG-THRUSH TO BREED IN THEIR BIRTHPLACES*

BY

IRENE WERTH.

(Edward Grey Institute of Field Ornithology, Oxford).

THE degree of inbreeding of a population is of obvious importance from the point of view of the differentiation of races and species. An analysis was therefore made of the ringing returns for British Blackbirds (*Turdus m. merula*) and Song-Thrushes (*Turdus e. ericetorum*) to determine the extent to which these birds breed in their birthplaces. These particular species were chosen merely because they have the greatest number of recoveries of ringed birds. Only those individuals ringed as nestlings are considered, as the birthplaces of trapped juveniles and of adults are unknown. Only those recoveries between April 1st and July 31st are taken as referring to breeding birds. Reference may be made to the parallel study of another *Turdus* species, the American Robin (*T. migratorius*) by Farner (1945), also to a note on the dispersal of the British Robin (*Erithacus rubecula melophilus*) by Lack (1943).

In Britain, both Blackbird and Song-Thrush are partial migrants, with a clear-cut division between residents and migrants (Lack 1943). The winter distribution of residents is important, for the birds which breed in their birthplaces might either belong to a static population which never moves, or they might undergo a degree of dispersal in winter with a definite return to the birthplace to breed. For this purpose an analysis has been made of the non-migrant birds recovered during the period October 1st to March 31st, recoveries in the first winter being treated separately from those in subsequent winters. The figures for the Blackbird are given in Table 1.

TABLE 1. RECOVERIES OF BLACKBIRDS RINGED AS NESTLINGS.

		Percentage recovered.		
			Away from where ringed.	
	Total recovered.	*Where ringed.*	*Within 5 miles*	*Over 5 miles*
Breeding (April-July) ...	157	72%	21%	7%
1st winter (Oct.-Mar.) (excluding migrants) ...	101	58%	28%	14%
Later winters (Oct.-Mar.) (excluding migrants) ...	100	64%	25%	11%

The distances moved were either short and local or fairly long. The five-mile limit was chosen as showing this most effectively. Birds recovered away from where ringed but within five miles might be considered as still in the breeding locality, but for accurate delineation of the birthplace it is better to consider them separately from those recovered where ringed.

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*Publication of the British Trust for Ornithology.

The Blackbird is seen to show a marked tendency to return to breed in the place where it was reared, 72% of the summer recoveries being in the place where they were ringed. As regards the winter residents, Lack (1943) has shown that 79% of the first-year Blackbirds and 75% of the older birds remain resident. It is this percentage which has been analysed in the second half of Table 1, migrants being excluded. As the figures of 58% and 64% found where ringed in winter refer to residents only, a smaller proportion of the total population is involved, 46% and 48% respectively. The figures therefore show that while 72% of Blackbirds breed near where they were born, only just under 50% stay there all the year round. But the birds which disperse from the breeding sites for the winter have a strong tendency to return there to breed. This suggests that there is in effect little inter-breeding between different groups of Blackbirds.

The position with regard to the Song-Thrush is somewhat different, as the birds show a greater tendency to scatter.

TABLE 2. RECOVERIES OF SONG-THRUSHES RINGED AS NESTLINGS.

		Percentage recovered.		
			Away from where ringed.	
	Total recovered.	*Where ringed.*	*Within* 5 *miles*	*Over* 5 *miles*
Breeding (April-July) ...	126	52%	31%	17%
1st winter (Oct.-Mar.) ... (excluding migrants)	65	49%	31%	20%
Later winters (Oct.-Mar.) ... (excluding migrants)	58	47%	27%	26%

The figures in Table 2 show that only about half the Song-Thrush population return to breed in their birthplaces, thus suggesting a more marked degree of inter-breeding of different groups than in the Blackbird.

The British Song-Thrush is also more migratory than the Blackbird, Lack giving 41% as resident in the first winter and 46.5% in later winters. The proportion which remains where ringed during the winter is much smaller than in the Blackbird, only about 20% after allowing for the migrants.

An examination of the early returns of ringed nestlings of both species shows that the dispersal of young birds from the breeding sites increases as they get older, and it definitely starts before the winter months. The returns were grouped in fortnightly periods according to the number of weeks from ringing. The birds recovered in the first fortnight after ringing were discarded, as they are not by then fully independent of their parents. The numbers recovered after the twelfth week are too few for reliable percentages to be calculated.

TABLE 3. EARLY RECOVERIES OF BLACKBIRDS RINGED AS NESTLINGS.

		Percentage recovered.		
			Away from where ringed.	
Weeks from ringing	*Total recovered.*	*Where ringed.*	*Within 5 miles*	*Over 5 miles*
3 and 4	76	91%	8%	1%
5 and 6	71	88%	11%	1%
7 and 8	57	77%	16%	7%
9 and 10	38	61%	26%	13%
11 and 12	20	70%	15%	15%

TABLE 4. EARLY RECOVERIES OF SONG-THRUSHES RINGED AS NESTLINGS.

		Percentage recovered.		
			Away from where ringed.	
Weeks from ringing	*Total recovered.*	*Where ringed.*	*Within 5 miles*	*Over 5 miles*
3 and 4	96	88%	12%	0%
5 and 6	82	78%	18%	4%
7 and 8	34	77%	23%	0%
9 and 10	22	59%	32%	9%
11 and 12	22	55%	18%	27%

To sum up, there is in both Blackbird and Song-Thrush a tendency for an early dispersal of fledglings followed by a winter dispersal of older birds, the migratory Song-Thrush showing this more strongly than the Blackbird. There is a greater tendency for the Blackbird both to remain in the breeding locality and also to return to breed in the birthplace after dispersal. Consequently there is a greater mixing of the population amongst Song-Thrushes than amongst Blackbirds.

Acknowledgments are due to Miss E. P. Leach for placing the *British Birds* ringing returns at my disposal, and to the Director of the Edward Grey Institute, Mr. David Lack, for suggesting the problem.

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THE GROWTH OF A YOUNG CUCKOO

BY

IRENE WERTH.

(Edward Grey Institute of Field Ornithology, Oxford).

A SERIES of observations was made in June, 1946, upon the growth of a young Cuckoo (*Cuculus c. canorus*) in the nest of a Hedge-Sparrow (*Prunella modularis occidentalis*) near Oxford. The nest was in one of the dividing privet hedges of the back gardens of a single row of houses on a road leading to the river. Thus though the nest was very near the house, it was also in open country. The egg appeared in the nest on the morning of May 22nd, and hatched between 09.00 and 10.00 hours on June 3rd. The young bird remained until about 18.00 hours on June 23rd, giving an incubation period of 12 days and a fledging period of 20¼ days.

One visit daily was made to the nest between 14.45 and 16.30 hours G.M.T., when the bird was weighed and the developmental changes noted. Unfortunately a hatching weight could not be obtained, the first recorded weight being 3.6 grams when the bird was 7½ hours old. At this time it was sharing the nest with one of the young Hedge-Sparrows, the other occupants of the nest having already disappeared. It did not manage to throw out this remaining bird until the afternoon of the following day.

Table I shows the weights recorded at the above Oxford nest, together with the weights obtained at two other nests. J. Bussmann (1947) weighed a young Cuckoo in the nest of a White Wagtail (*Motacilla a. alba*) at Hitzkirch, Switzerland, from June 9th to June 27th, 1946. His results were kindly communicated to us prior to publication, but have since appeared in a paper in the *Ornithologische Beobachter* in which the present results are also quoted, by permission. Between the reception of this paper and its appearance in print, another young Cuckoo has been weighed, and the results added to Table I and Fig. 1. This last bird was found in the nest of a Robin (*Erithacus rubecula melophilus*) near Oxford by Miss E. T. Silva (of the Edward Grey Institute), who also weighed the bird daily. This bird is thought to have hatched about June 2nd, but was not visited until June 4th.

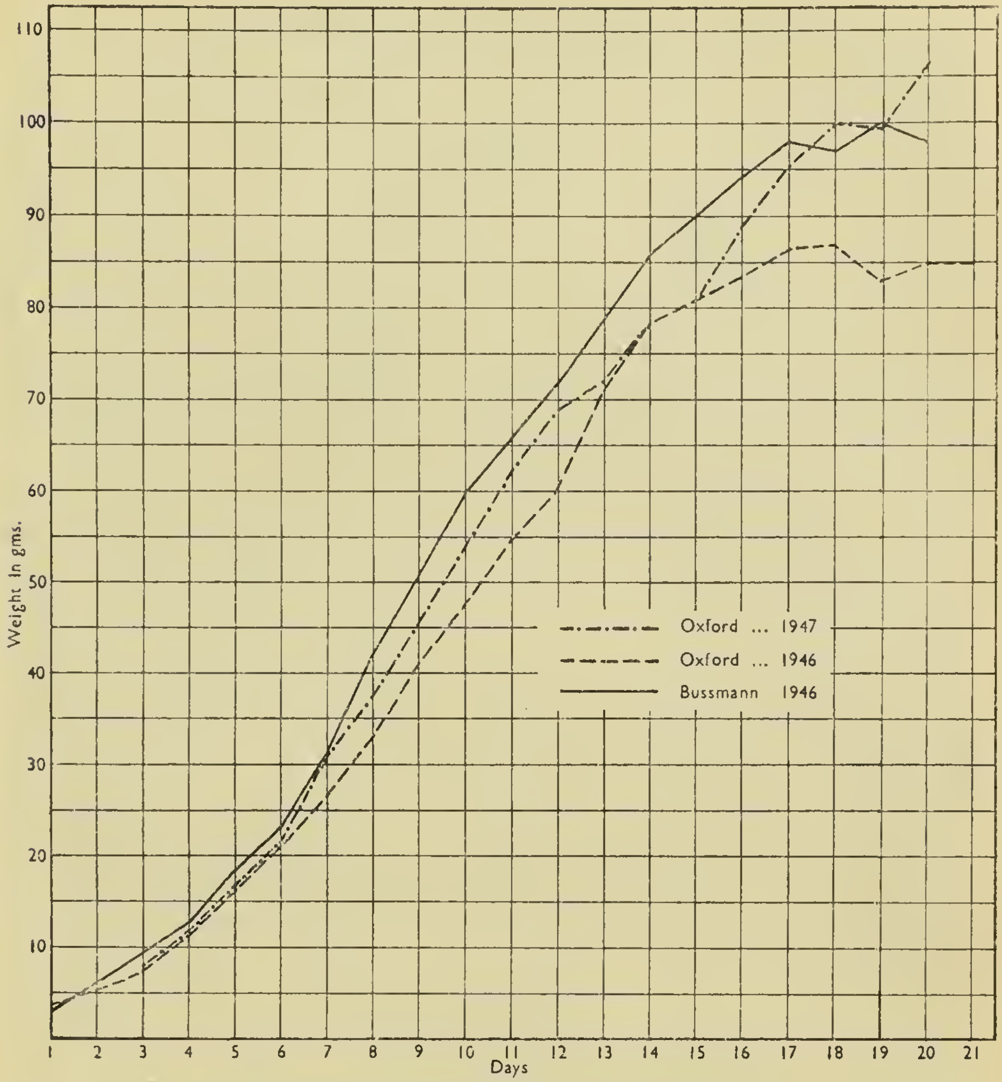
The weights at the Oxford, 1946, nest are lower than either the Swiss ones or the Oxford, 1947, nest. One factor concerned is probably the adverse weather conditions experienced in England in the summer of 1946. A number of the weighings were made in heavy rain, and there was some rain on most days throughout the period that this Cuckoo was in the nest. The average temperature was also below normal for the month. On the other hand, in Switzerland in 1946, the weather was good almost throughout the Cuckoo's nestling period and the same applied to Oxford in 1947. Bad weather perhaps handicaps parent Hedge-Sparrows in their search for food.

TABLE I.

Day	*Wt. at Oxford,* 1946 *about* 15.30 *hrs.*	*Wt. at Hitzkirch,* 1946 *about* 16.30 *hrs.*	*Wt. at Oxford,* 1947 *usually* 10.00-14.00 *hrs.*
1st day	3.6 gms.	3.0 gms.	—
2nd ,, ...	5.4 ,,	—	—
3rd ,, ...	7.5 ,,	—	8.0 gms.
4th ,, ...	11.4 ,,	12.8 ,,	11.6 ,,
5th ,, ...	16.4 ,,	18.5 ,,	16.4 ,,
6th ,, ...	21.2 ,,	23.0 ,,	21.6 ,,
7th ,, ...	26.8 ,,	31.0 ,,	31.0 ,,
8th ,, ...	32.9 ,,	42.0 ,,	37.5 ,,
9th ,, ...	41.1 ,,	—	45.5 ,,
10th ,, ...	47.7 ,,	60.0 ,,	54.0 ,,
11th ,, ...	54.5 ,,	—	62.0 ,,
12th ,, ...	60.0 ,,	72.0 ,,	69.0 ,,
13th ,, ...	71.0 ,,	—	72.0 ,,
14th ,, ...	78.5 ,,	86.0 ,,	78.5 ,,
15th ,, ...	81.0 ,,	—	81.0 ,,
16th ,, ...	83.5 ,,	94.0 ,,	89.0 ,,
17th ,, ...	86.5 ,,	98.0 ,,	95.5 ,,
18th ,, ...	87.0 ,,	97.0 ,,	100.0 ,,
19th ,, ...	83.0 ,,	100.0 ,,	99.5 ,,
20th ,, ...	85.0 ,,	98.0 ,,	106.5 ,,
21st ,, ...	85.0 ,,	—	—

One further set of Cuckoo weights is available, made by Makatsch (1937). Unfortunately he does not give the time of day of his weighings, nor does he make it clear whether his Cuckoo was weighed from the first day—the initial weight of 5 grams certainly suggests that he started a day late. In either case, his results are intermediate between the present sets. Makatsch elsewhere gives a hatching weight of 2.8 grams for a young Cuckoo. The growth of a young Cuckoo raised by hand in the Zoologische Anstalt at Basle is also given by Bussmann (1947).

The following further notes are based solely on the young Cuckoo at Oxford in 1946. A marked feature was its persistent gaping whenever the hedge was disturbed, and throughout handling and



GROWTH-CURVES OF YOUNG CUCKOOS.

weighing. The gape being bright orange, it is particularly conspicuous.

On hatching, the young Cuckoo was completely naked and of a uniform pale flesh colour, with the characteristic flat back and strong legs well marked. Apart from increasing in size, it remained unchanged for two days. At this stage the ejecting response was easily induced by placing small stones or lumps of soil on its back. By the third day, the skin had become darkly pigmented, almost black, and the response had been lost.

The first signs of feathering, in the form of the sheaths of the primaries, became visible on the fifth day, and those of the secondaries, the head, the scapular and thigh regions by the sixth day. The feathers of head, scapular and thigh regions opened as soon as they broke through the skin, the secondaries began to open on the tenth day and the primaries on the eleventh day. From this point the secondaries and their coverts developed rapidly, but not the primaries, which remained more or less arrested for several days.

Hence from the thirteenth to the sixteenth day, the young Cuckoo was almost fully feathered on the secondary region of the wings, the scapular region, the head and the upper neck, and the white tip to the tail was also well developed. As one approached the nest, the impression was of an almost fully feathered bird sitting in it. Actually, however, the other parts covered by those feathers or concealed from above, namely the primaries, the back and the sternal regions, were still bare. When the bird was removed from the nest and these patches exposed, their curious bareness was most striking. This peculiar feather development is presumably well known, for it is pictured by Heinroth (1926), but there is apparently no reference to it in the bird literature. As a result of it, the exposed surfaces of the body become covered precociously, while other areas are retarded. The latter possibly helps the bird to fit inside the small nest, while the former ensures that the essential areas are covered. The Hedge-Sparrow was not observed to brood the Cuckoo after the ninth day, in daylight. Whether it still succeeded in affording it cover at night is a point worth checking. After the sixteenth day the primaries and their coverts developed quickly and the bird left the nest on the twenty-first day.

Acknowledgments are due to Mr. W. B. Alexander for knowledge of the nest, to Mr. and Mrs. Langridge for allowing daily visits to their garden and for keeping a watch on the bird, and to the Director and staff of the Edward Grey Institute for their interest and assistance.

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STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED

XI. THE RUFOUS, SARDINIAN AND OLIVACEOUS WARBLERS.

Photographed by A. STUBBS.

(Plates 32–39).

THE unique photographs of these three warblers were taken at Habbaniya on the Euphrates in Iraq during the war by Mr. A. Stubbs, who has contributed some useful notes on all three species as observed in that locality. All three are on the British List as very rare stragglers and all are found in Southern Europe as well as in Western and Central Asia. The first two are represented in Iraq by different geographical races from those of Europe, but for all except strict taxonomic purposes sub-specific differences can be ignored. It should, however, be remarked that the Central Asiatic form of the Sardinian Warbler (*Sylvia melanocephala mystacea*) is a well-marked race with the black of the head in the male less intense than in the European form and a rosy flush on the breast, characters which have led to its being regarded by some as a distinct species under the name of Ménétries's Warbler, although apart from the small colour difference it appears to be identical in every way with the other races of Sardinian Warbler. The Rufous Warbler is represented in Iraq by the form *Agrobates galactotes familiaris*, a more grey-brown bird than the foxy-coloured West European race (*A. g. galactotes*), more like the form *A. g. syriacus*, sometimes called the Brown-backed Warbler, which breeds as far west as Yugo-Slavia and is also on the British List. The Olivaceous Warbler in Iraq is the Eastern form, *Hippolais pallida elæica*, which breeds as far west as the Balkan peninsula and is actually the sub-species on the British List (on the basis of a single fully authenticated occurrence), although another form, *H. pallida opaca*, breeds much nearer to Britain, in Spain.

The Rufous Warbler is easy to recognize on account of its striking tail, rather like a miniature Turtle-Dove's, with broad white tips and black sub-terminal bars to the rufous feathers, which is constantly spread and flirted up and down. Mr. Stubbs notes that "besides being opened and closed like a lady's fan it can be placed almost horizontally along the back. In moving the tail backward and forward the wings have to be slightly extended to allow for its movement, and in unison with the tail action they extend and fold also."

The Rufous Warbler in Europe is chiefly a bird of gardens, vineyards, olive groves or other cultivation or of dry, bush-covered localities, with a particular predilection for prickly-pear hedges, in which, as well as in hedges or bushes, it commonly nests. Mr. Stubbs notes that " at Habbaniya it is essentially a bird of the palm groves, although occasionally it is to be found nesting in gardens and hedgerows. After the nesting season its numbers are so great that it was to be seen in all parts of the military camp.

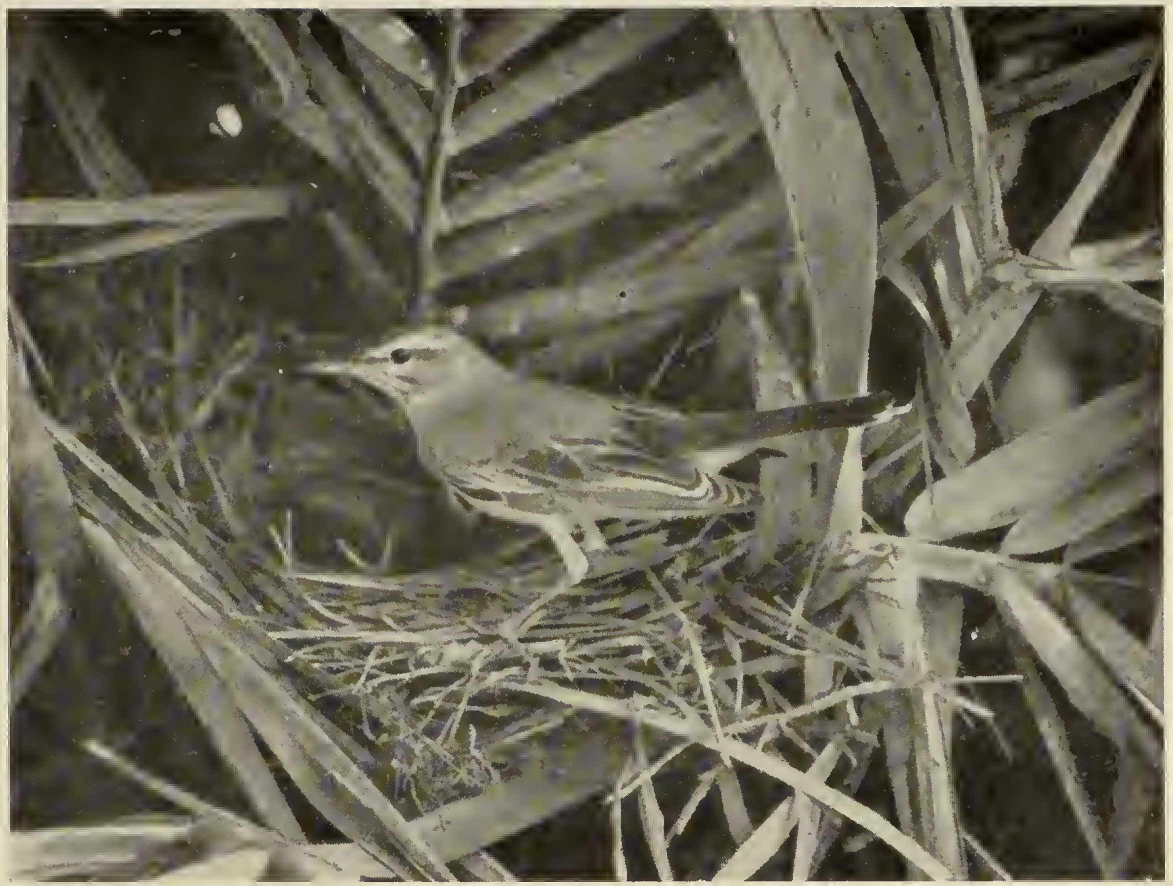
"It arrives at Habbaniya about the close of April and almost at once commences to nest. By the beginning of May nests containing eggs were to be found in several bushes of the palm grove in the camp. The nest is a stout but rather poor structure of coarse grass and tender roots lined with hair and flowerdown and in several cases with dried snake skin. It is usually placed from three to six feet high in the most conspicuous sites. A favourite nesting site for this species is the narrow end of a funnel formed by three or four palm leaves, several of which such shapes are to be found in each palm bush. In many instances the nest is so crudely built that it fails entirely to house the eggs—which then just roll over the side at the slightest vibration. [Ticehurst ("Birds of Mesopotamia," *Journ. Bombay Nat. Hist. Soc.*, Vol. xxxviii, 1922, p. 393) found the nest "a fairly solid structure," so no doubt there is individual variation.—B.W.T.] The eggs, three to six in number, are white, thickly speckled and blotched with varying shades of grey and brown and are not unlike certain types of House-Sparrows' eggs. Quite a number of sets of five eggs were examined and four of six.

"Because of the number of nests found throughout May, June and July and because of the fact that every palm bush in the grove at some time houses its family of Rufous Warblers there is full reason to believe that this species in Iraq nests three times in one season ; that it is at least double-brooded may be considered certain. The first brood appears about mid-May, the second about mid-June and the third about mid-July, while nests with eggs are to be found late in July. The young develop with amazing rapidity—such is the abundance of food (ranging from small grubs and insects to a species of grasshopper about two inches long) that the nest is hardly ever deserted by the feeding parents from the time the eggs hatch to the time when the chicks are able to leave the nest.

"Unlike other warblers of the grove this species delights in perching on the most prominent places, such as the broken stumps of palm stems and the arches of palm fronds reaching far out from the parent tree, and there it pours out its beautiful song.

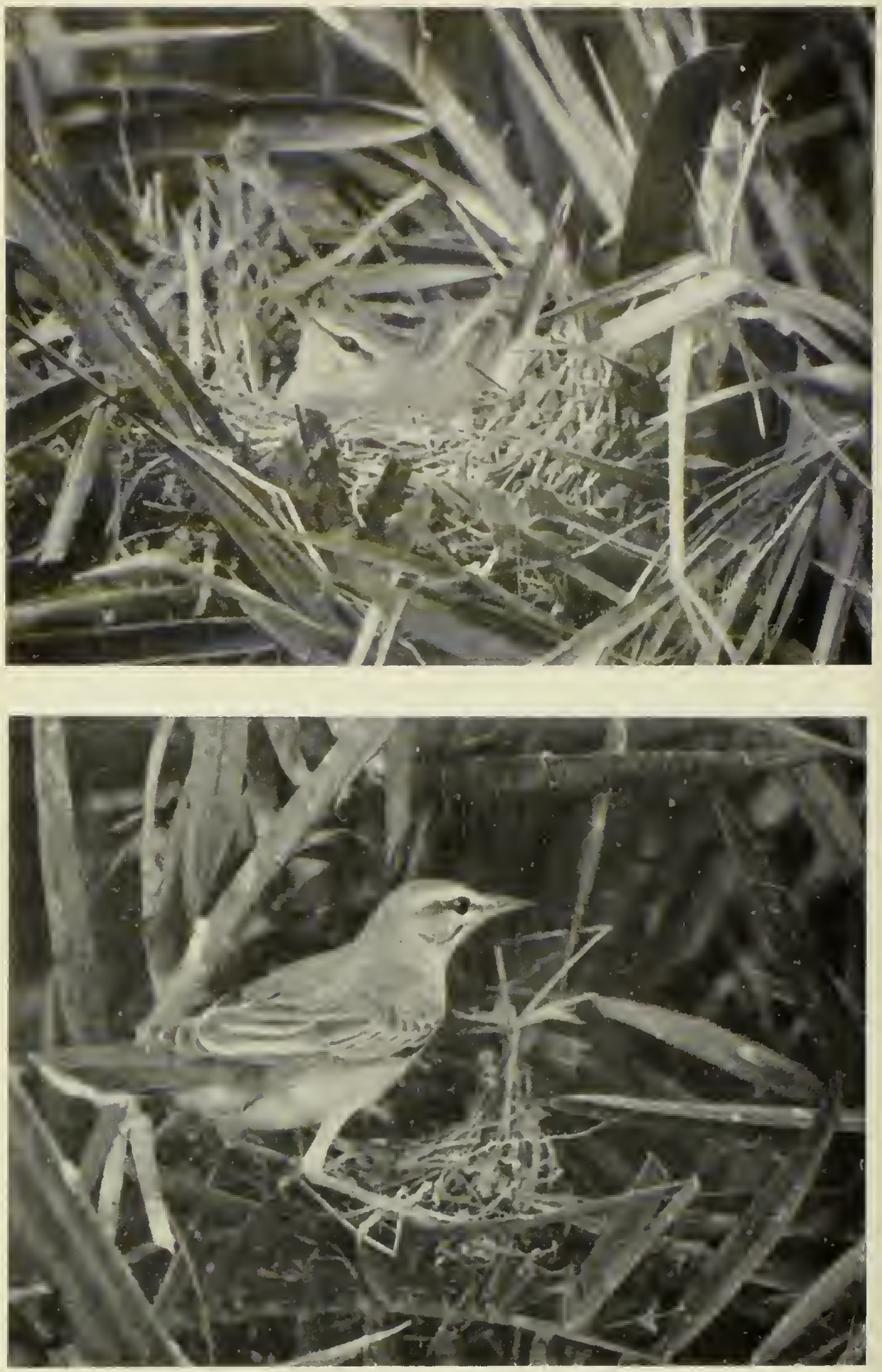
"About the end of August the Rufous Warbler commences to move from the district, although even after that period many still continued to pass through the camp from the upper reaches of the Euphrates."

The Sardinian Warbler in Europe is one of the common birds of the Mediterranean scrub, where its remarkably hard-sounding, harsh and stuttering alarm-note is one of the most characteristic bird sounds. It is a bird a trifle smaller than a Whitethroat with, in the male, a black cap extending below the eye, pure white throat and slate-grey back, as well shown in Plate 35. The female, as shown in the lower figure in Plate 36, is a much more uniform brownish bird, with brown not black head. In *S. m. mystacea* the female is somewhat greyer-looking than in the European form,

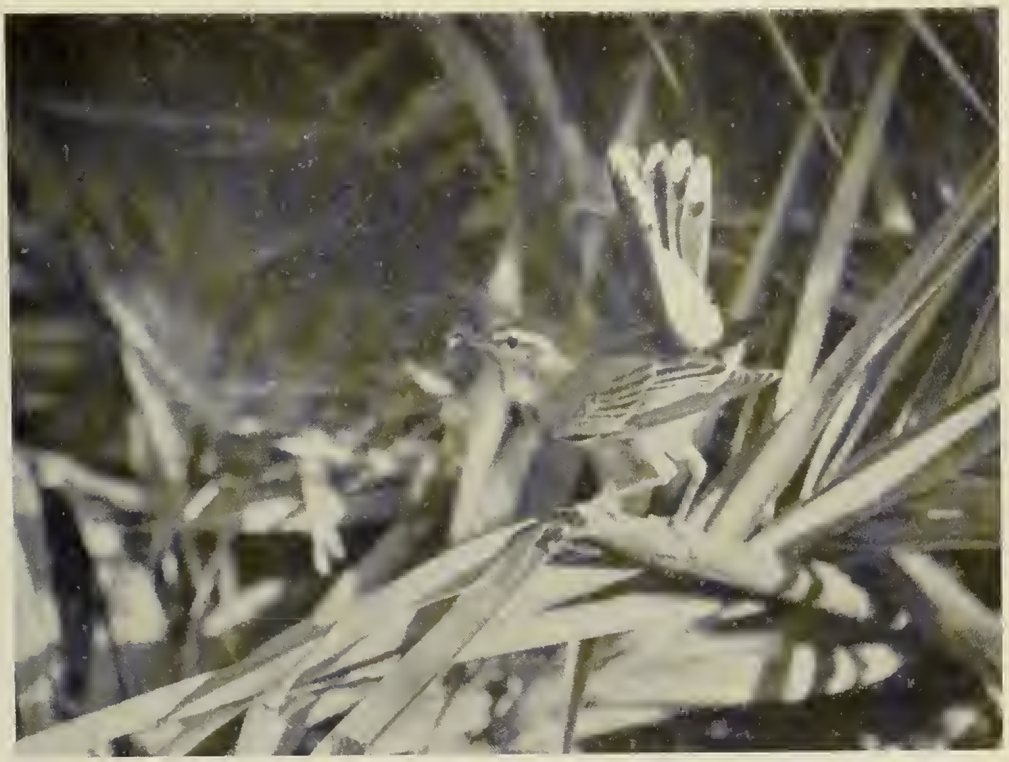


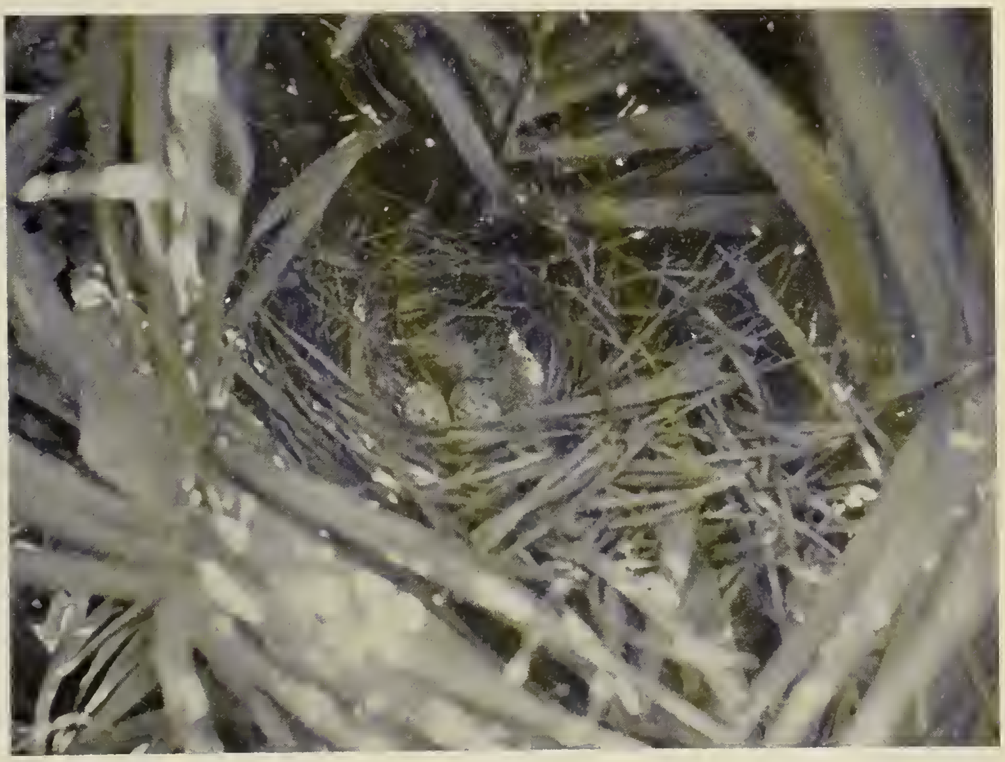
Rufous Warbler (*Agrobates galactotes*) at nest, Habbaniya, Iraq.

(*Photographed by* A. Stubbs).

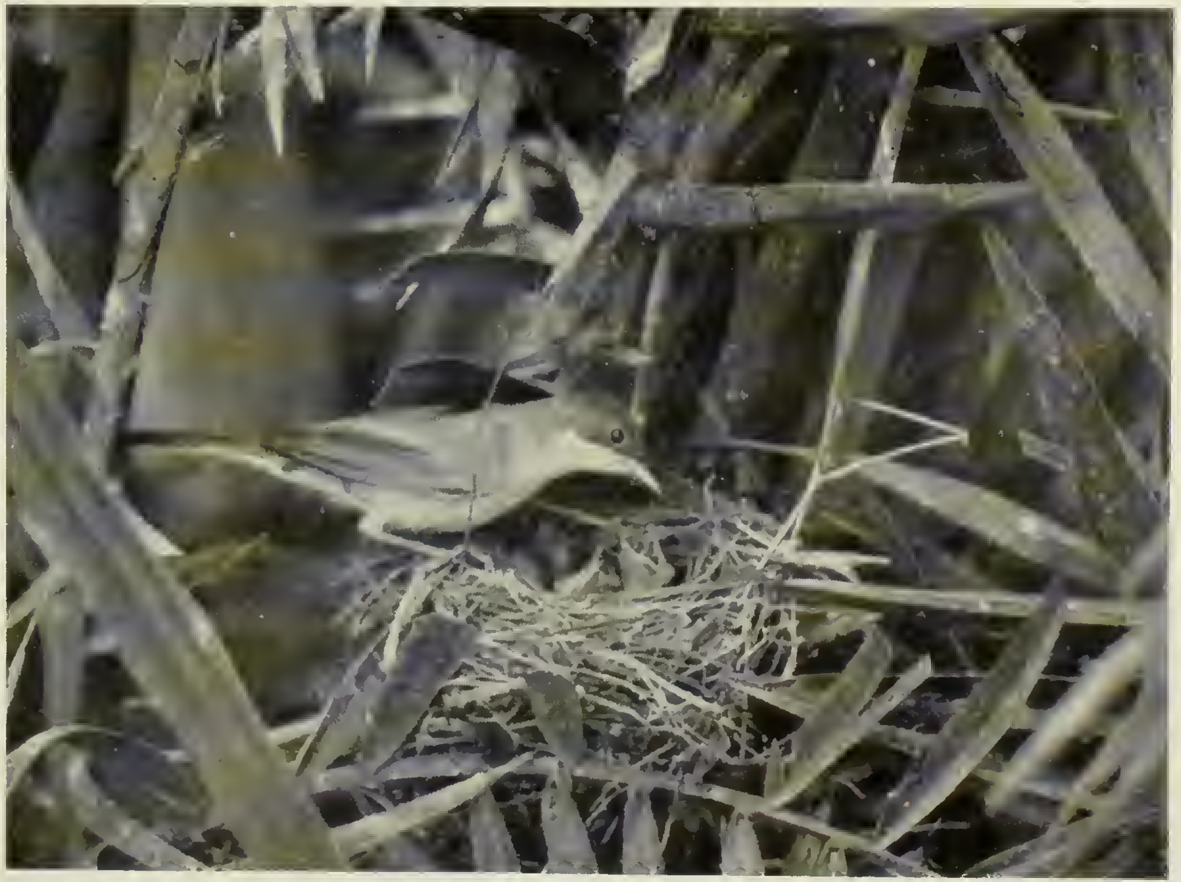


Rufous Warbler (*Agrobates galactotes*), Habbaniya, Iraq.
Upper—On nest.
Lower.—At nest of Sardinian Warbler.
(*Photographed by* A. Stubbs).



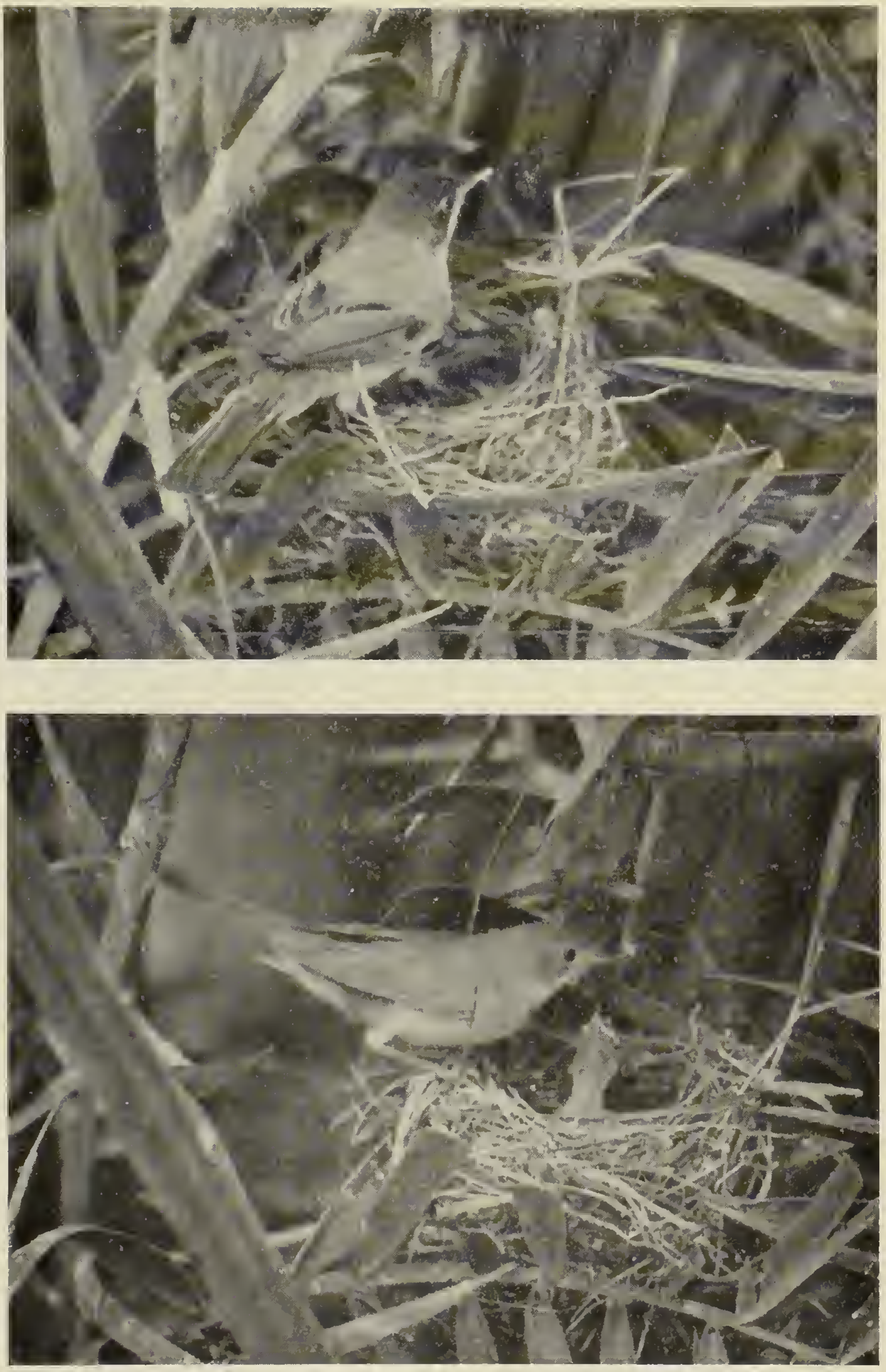


Rufous Warbler (*Agrobates galactotes*), Habbaniya, Iraq.
Upper.—A characteristic position with tail erect.
Lower.—Nest and eggs.
(*Photographed by* A. Stubbs).

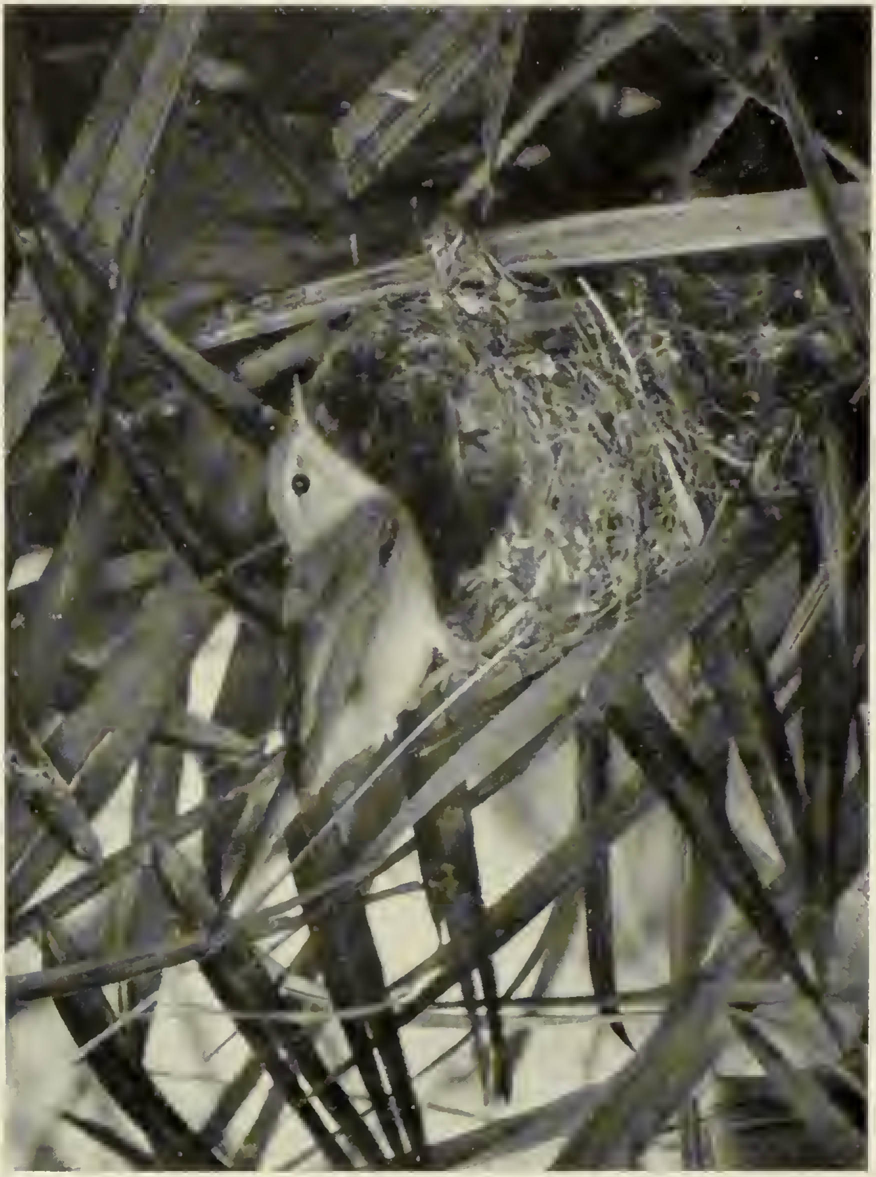


SARDINIAN WARBLER (*Sylvia melanocephala*): MALE AT NEST, HABBANIYA, IRAQ.

(*Photographed by A. Stubbs.*)

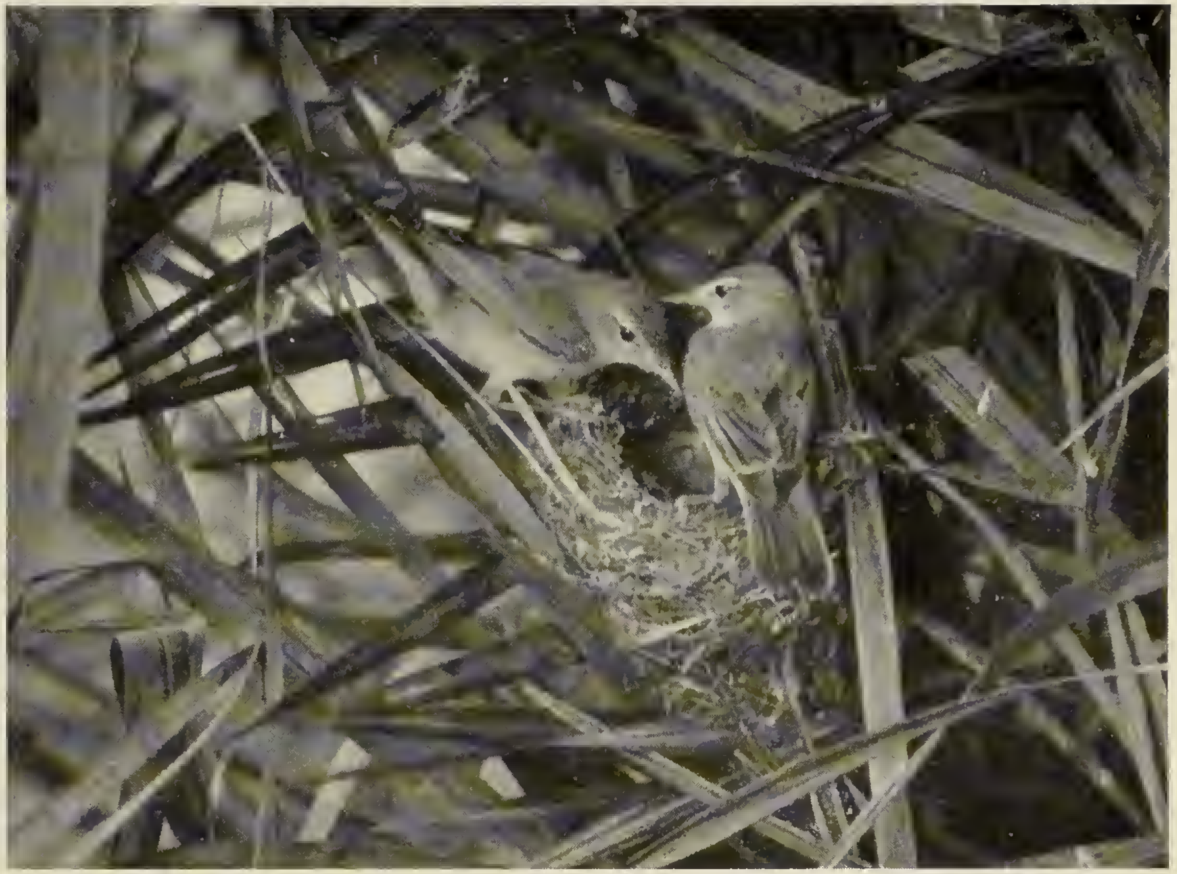


Sardinian Warbler (*Sylvia melanocephala*), Habbaniya, Iraq.
Upper.—Male at nest.
Lower.—Female at nest.
(*Photographed by* A. Stubbs).



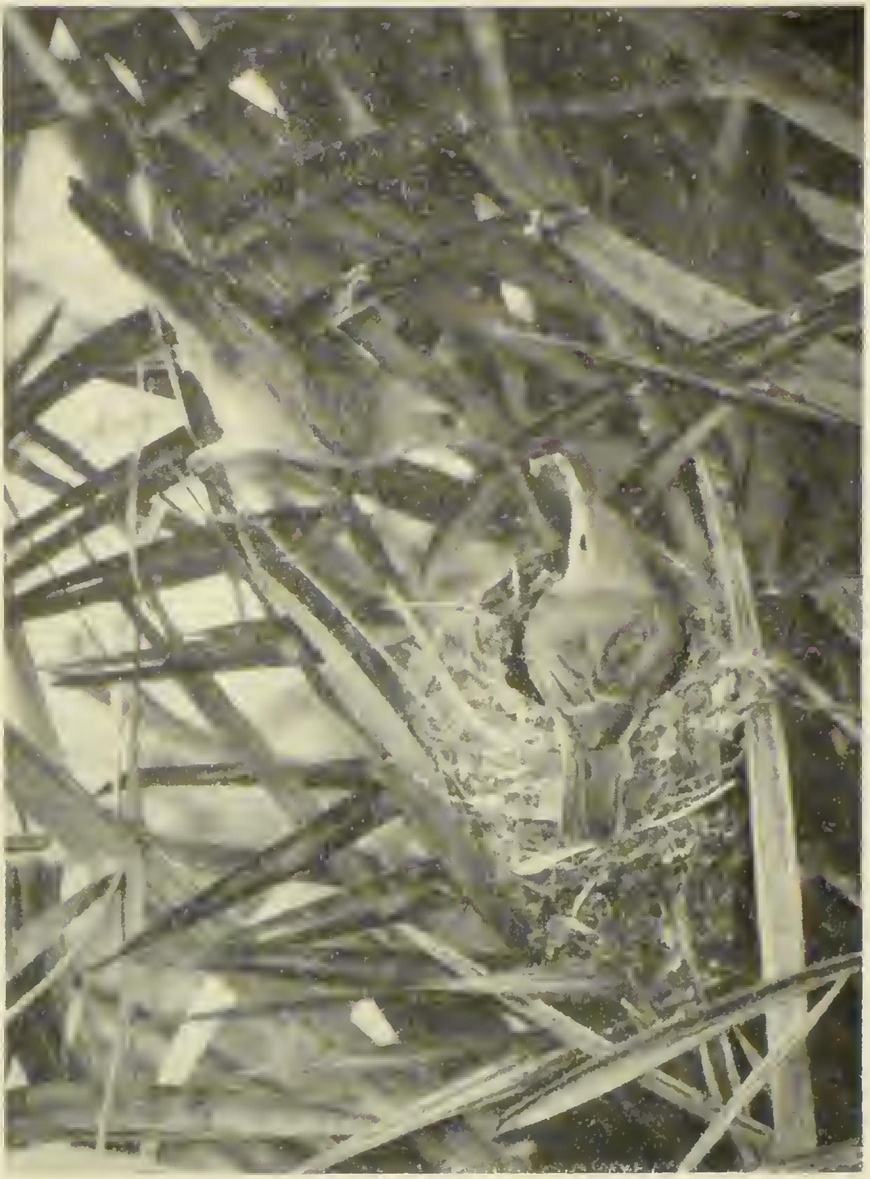
Olivaceous Warbler (*Hippolais pallida*) at nest, Habbaniya, Iraq.

(*Photographed by* A. Stubbs).



Olivaceous Warbler (*Hippolais pallida*) : Male and female at nest, Habbaniya, Iraq.

(*Photographed by* A. Stubbs).



Olivaceous Warbler (*Hippolais pallida*)
Male feeding female on nest, Habbaniya, Iraq.

(*Photographed by* A. Stubbs).

showing in the field, according to Mr. Stubbs, "a beautiful even light grey wash which in sunshine becomes a very light brown."

In Europe the species nests in bushes and thickets, but at Habbaniya is, like the Rufous Warbler, essentially a bird of the palm groves, though found occasionally nesting in hedgerows and gardens.

"It arrives at Habbaniya in the beginning of April and commences to nest in the beginning of May. The nest is a beautiful brown-coloured structure of palm fibre interwoven with fine grass. It is small, round and deep and very neat, but rather frail and is usually built in a palm bush from three to six feet high, although clumps of reeds and other bushes are utilized. It is rarely well concealed, for like the Rufous Warbler this species prefers the outer foliage of the bushes, rather than the dark and more entangled interiors.

"The eggs, very often four in number but sometimes five (I examined two nests at Habbaniya, each with five) are white or pale olive, thickly speckled and blotched with varying shades of olive-brown. Some two or possibly even three broods are reared each season."

The Olivaceous Warbler resembles its relatives the Icterine and Melodious Warblers in general appearance, but lacks the greenish and yellowish colouring of those species, being brown above and buffish-white below. Its haunts in South-eastern Europe are principally gardens, orchards, plantations, olive-groves and bushy places, often near water. In Iraq, like the other species under consideration, it may be found breeding in palm-groves.

Mr. Stubbs writes : "The Olivaceous Warbler begins to nest about the second week in May, but its nest building like that of other species is very quick, and by the middle of May most nests contain a full clutch. The nest is a most beautiful structure. It is built of fine grass thickly interwoven with spider's cocoons, thistle down and occasionally a feather or two and is an inverted cone in shape. It is also very deep, round and neat and the workmanship is finished off is such a manner as to remind one of the exquisite beauty of the Chaffinch's nest. The nest of the Olivaceous Warbler is, however, much more frail. It is to be found in very similar positions to the nest of the Sardinian Warbler, but unlike that species the Olivaceous weaves its home to the surrounding palm leaves or stems and more or less suspends it in that fashion.

"The eggs, some four or five in number, have a chalky white ground and are sparingly blotched with faint purple and speckled and streaked with deep purple to brown and black. As sets of five are stated to be very rare in Europe it may be mentioned that I found two such at Habbaniya."

Plate 39 shows the male feeding the female on the nest, which does not appear to have been previously recorded in this species.

B.W.T.

THE COLOUR-PHASES OF THE FULMAR

BY

JAMES FISHER.

THE *Handbook* (Vol. iv, p. 79) contains a statement of mine on the distribution of the colour phases of the Fulmar (*Fulmarus g. glacialis*) which is erroneous. It runs :—"proportions of dark birds are—Brit. Is. up to 2 per cent., except Shetland, where up to 20 per cent.; Faeroes and Jan Mayen up to 40 per cent.; Iceland (Westmann Is.) and Bear Is. up to 60 per cent.; rest of Iceland, E. Greenland, and W. Spitsbergen over 60 per cent."

This statement was badly compressed, by myself, from a note of mine in *Nature* (1939, Vol. 144, p. 941). The map in this note, and the plot of the distribution of the colour phases, lumped together observations at the Fulmar's breeding-places and at sea, and lumped all seasons together. This I should never have done. One of the results has been to give the impression that in part of Britain (namely Shetland) dark Fulmars are not uncommon. This is untrue; even in winter, in the immediate neighbourhood of the Shetland coast, dark Fulmars are extremely rare; and they are not normally encountered at sea until just out of sight of this coast. But occasionally, even in midsummer, dark Fulmars in small numbers penetrate some distance into the North Sea, especially towards the eastern side. Sometimes these amount to over 2 per cent., but under 20 per cent., of the total seen. To embrace this situation I drew a contour-line on the map which has contrived to mislead myself, and all readers of the note in *The Handbook*. With this explanation, which is no attempt at an excuse, I must proceed to a statement of the facts as they really are :—

In Britain (including Shetland) the dark Fulmar is no more than a peculiarity in the breeding season. A few have been seen among the ancient breeding-population of about 40,000 individuals on *St. Kilda*. In 1884 the dark form was "rare, though sometimes snared" (C. Dixon, *Ibis*, 1885, pp. 69-97). In 1902 "the immense majority . . . are of the usual white-breasted form, but I saw very few of the grey type" (J. Wiglesworth, 1903, *St. Kilda and its birds*, Liverpool). In 1910 dark birds were detected in small numbers at St. Kilda (W. Eagle Clarke, *Scot. Nat.*, 1912, pp. 102-4), and in 1914 the Duchess of Bedford obtained one "blue" Fulmar out of thousands (*Scot. Nat.*, 1914, pp. 173-81). In 1939 I saw one dark bird on Conachair, the main cliff of Hirta, in a census of the whole population. All these visits to St. Kilda were in the breeding-season.

Apart from St. Kilda, "blue" Fulmars have been seen at British breeding-stations only, as far as I know, on the following occasions : *Caithness*, Duncansby Head, December 1919, one among hundreds (L. J. Rintoul and E. V. Baxter, *Scot. Nat.*, 1920, p. 112). *Kincardine*, Fowlsheugh, June 18th, 1914, 1 in 10 birds (Rintoul, Baxter and L. R. Sutherland, *Scot. Nat.*, 1914, p. 215). *Forfarshire*, Red Head, June 3rd, 1921, 1 or 2 birds "darker" in 20 (D. G. Hunter, *Scot. Nat.*, 1921, pp. 125-6). *East Lothian*, Tantallon Castle, season 1943, 1 in 40 birds (T. S., *Scotsman*, January 1st, 1944). *Co. Durham*, Noses Point, Dawdon, March 18th, 1933. 1 in 116 birds (J. R. Crawford, personal communication).

The breeding Fulmars of the Faeroes (Finn Salomonsen, 1935, *Zoology of the Faeroes*, Copenhagen), and the Westmann Islands, S. Iceland (R. M. Lockley, *Ibis*, 1936, pp. 717-8) are, like those of Britain, practically all white. Even in the north of Iceland, on Grímsey (Bjarni Saemundsson, 1936, *Islensk Dyr III. Fuglarnir*, Reykjavik, p. 481) only 2 per cent. of the breeding Fulmars are dark, and on Jan Mayen the white form is still greatly in the majority, being estimated by C. G. and E. G. Bird (*Ibis*, 1935, p. 846) as 99.5 per cent. of the population. Indeed, something like a balance of numbers among breeding birds does not appear to be reached until Bear Island, and a complete preponderance of dark forms not until Spitsbergen (many authorities).

The exact situation in Bear Island is unknown. G. Swenander (1900, *K. Svenska Vetensk. Akad. Handl.*, Vol. 26, p. 28) found both dark and light "and every intermediate shade." Swenander stated that the dark form predominated, but O. Zedlitz (*J. Orn.*, 1911, Vol. 59, p. 316) noted "exactly the reverse" in July-August, 1910. G. C. L. Bertram and David Lack (*Ibis*, 1933, p. 294) between June 20th and August 10th, 1932, found "the blue and white forms were both abundant and interbred freely, but many birds showed some intermediate phase, while two seen were almost completely white* on back and wings." But no count has been taken, nor is it possible to make one from any available photograph; the next expedition to Bear Island should not miss the opportunity of a census.

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* Apart from pigment-less albinos, which have been recorded at least four times, extremely white fulmars, with white heads, backs and mantles, have been seen, at St. Kilda as long ago as 1840-41 (N. Mackenzie, 1905, *Ann. Scot. Nat. Hist.*, Vol. 14, pp. 78-80), and I saw at least four such birds there in 1939. Their eyes were pigmented. Some observations in the literature may of course refer to these rather than to real albinos (e.g. Spitsbergen (!) and Iceland, von Heuglin, *J. Orn.*, 1871, p. 206; and W. of Bear Island, May 16th, 1910, L. Munsterhjelm, 1911, *Öfvers. Finsk Vetensk. Soc. Förhandl.*, Vol. 53, p. 36.

NOTES.

STARLINGS ROBBING BLACKBIRDS OF WORMS.

On a fine morning in April, 1946, a number of Blackbirds (*Turdus m. merula*), Song-Thrushes (*Turdus e. ericetorum*) and Starlings (*Sturnus v. vulgaris*) were watched while feeding on a large lawn of King's College, Cambridge. The Starlings spent most of the time pecking at the ground for food, probably insects. Quite often, however, when a Blackbird in the vicinity was seen pulling at a worm a Starling would fly over to the spot and the Blackbird invariably moved away, leaving the worm to the Starling. This behaviour was observed frequently during the course of the morning and on no occasion did the Blackbird make any effort to drive off the Starling. Occasionally the Starling interrupted the procedure before the worm had been pulled right out of the ground, but on the departure of the Blackbird, the Starling would not attempt to complete the capture for itself. This method of obtaining worms appeared to be practised by all the Starlings on the lawn, to the great hindrance of both Blackbirds and Song-Thrushes, a particular bird often being deprived of several worms in succession.

Since this practice appears not to be general it would be interesting to know in what other parts of the country it has been observed, if any. M. V. Brian and A. D. Brian.

"SMOKE-BATHING" OF STARLING.

A note on the "anting" of the Starling (*Sturnus v. vulgaris*) (*antea*, Vol. xxxix, p. 84) and mention of it in Vol. xl, p. 85, prompts me to add that I have on several occasions noted what I take to be analogous behaviour in these birds, that is, their habit of perching on the lee side of a chimney, allowing the smoke to blow over them, on occasions shuffling their feathers as though encouraging the smoke to penetrate all parts of their plumage.

I have also a note referring to this behaviour in the Rook (*Corvus f. frugilegus*), which the writer (Colin Macdonald) says he has seen take place. The probable connexion between the two habits of the rather verminous Starling seems to be worth noting.

Roger C. Prideaux.

[It should be noted that, as Chisholm has shown (*Ibis*, 1944, pp. 389-405), there are considerable objections to the "anti-parasite" theory as a general explanation of "anting." The alternative suggestion that weak acids have a stimulating effect on the skin, which is agreeable to the birds, would presumably apply also to smoke.—Eds.]

ARCTIC REDPOLL IN AYRSHIRE.

On January 31st and February 1st, 1947, I had under observation at Barr, Ayrshire, a solitary redpoll which was evidently an example of *Carduelis hornemanni*. It was exactly like the figure of Coues's

Redpoll (*C. h. exilipes*) in Plate 9 of *The Handbook* except that there were a few streaks on the under tail-coverts, a condition which the text states is often present in this form.

The bird was very tame and spent much of its time feeding on an old lawn which had not been mown in recent years, where it usually allowed me to approach within 6 feet or so. On February 1st I was able to get a good view of the under-side when it flew into the lower branches of a lime tree and allowed me to get directly underneath it.

The following characters were noted: Breast, belly and rump, white; some streaking on flanks and under tail-coverts; no pink on breast; back and mantle greyish-white streaked black. Wing-coverts light buff, streaked black; white bar on secondaries. Crown blood red; a little buff on cheeks; chin black. Except for the wing-coverts and cheeks there was really no buff visible, the whole of the rest of the plumage being made up of grey, white and black. The rump gave the impression of having a slightly bluish tinge, but was white enough for me to mistake the bird for a Brambling at first sight and quite without streaks of any kind. It appears likely to have been an example of Coues's Redpoll rather than Hornemann's (*C. h. hornemanni*), as it seemed to be no larger than a Lesser Redpoll, and in view of the absence of pink on the breast was evidently a female or first winter male. G. HUGHES ONSLOW.

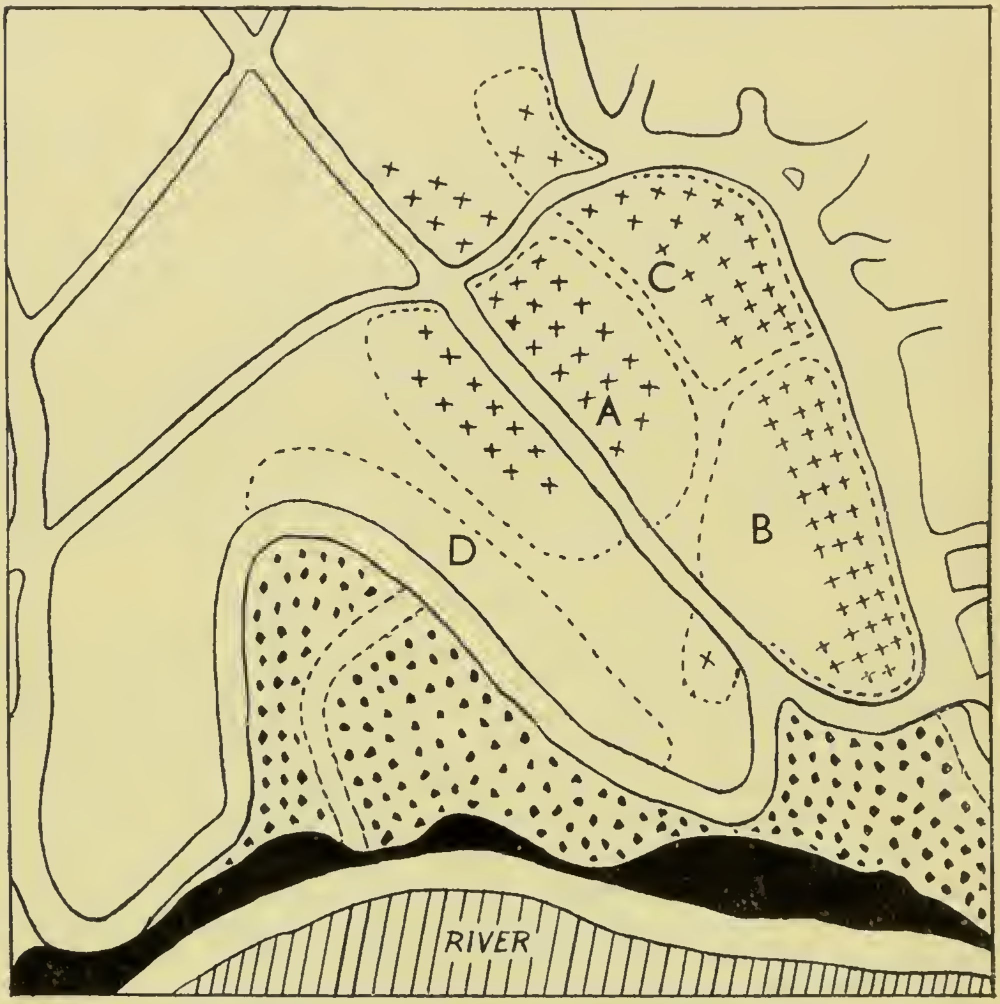
CIRL BUNTING TERRITORIES.

DURING the winter of 1945-46 a flock of fifteen Cirl Buntings (*Emberiza c. cirlus*) inhabited a grassy limestone plateau dotted with hawthorns and a few tall trees in the south-west of England. By the end of January, 1946, this flock had split up into two parties consisting of eight and seven birds respectively. The smaller group eventually left the district, but the larger remained. From the end of January to mid-August, I had them under constant observation. The flock followed the usual procedure, showed a tendency to feed in couples, cocks became aggressive, song increased in intensity, and finally the birds paired and took up territories. All four pairs successfully reared broods, but I only found one nest containing three eggs (B pair), which was unaccountably deserted. The territory of this B pair was constantly trespassed upon by cocks from A and D and I frequently saw them ousted by cock B, who chased them right to the limits of his area. From regular visits I got to know the boundaries of the territories intimately. In August, I measured them, taking cross measurements from the farthest points at which I had seen the birds feeding. The results were amazing in their regularity.

A. 185 yards x 205 yards.
B. 180 ,, x 254 ,,
C. 180 ,, x 250 ,,
D. In private ground and unmeasured.

One observation, which I give with reserve as it will require further checking, is that there seemed to be a strip of no man's land between each territory in which one rarely or never saw either pair.

In the spring of 1947 all the old territories were reoccupied with more or less the same boundaries ; but in addition a fifth pair took up territory about half a mile away. R. P. GAIT.



MAP OF CIRL BUNTING TERRITORIES.

+ + + Hawthorns and small trees.

. . . Tall trees and heavy undergrowth.

YELLOW WAGTAIL IN SUSSEX IN WINTER.

ON January 19th, 1947, Mr. L. P. Alder and I identified a Yellow Wagtail (*Motacilla flava flavissima*) amongst a straggling band of Pied Wagtails (*M. alba yarrellii*) at West Wittering, Sussex. Good views were obtained at close quarters ; the short tail, greenish-brown nape and back, dark slate-grey (instead of light brown) legs and typical Yellow Wagtail call-note, "swee-ep," precluded any possible confusion with the Grey Wagtail (*M. c. cinerea*). There was an inconspicuous creamy-buff eye-stripe and the throat, breast and belly were pale creamish-buff shading to yellow posteriorly. There was a small dark smudge on either side of the upper breast. The bird was feeding with the Pied Wagtails amongst the debris along high water mark on the sand and shingle beach.

I may add that we are thoroughly familiar with both Yellow and Grey Wagtails. C. F. BROWN.

[Mid-winter records of Yellow Wagtails are extremely unusual. We know of no January occurrences, but one in Cumberland on December 4th, 1920 (*antea*, Vol. xiv, p. 185) is quoted in *The Handbook.* Another authenticated record, overlooked in that work, is of one shot near Banbury "in Christmas week," 1905, and examined by O. V. Aplin (*Zool.*, 1907, p. 330).—EDS.]

TAWNY PIPIT IN SOMERSET.

ON May 4th, 1947, by Cheddar Reservoir, Somerset, Mr. R. P. Gait and the writer obtained very close views of a small wagtail-like bird which was evidently a Tawny Pipit (*Anthus c. campestris*). It first attracted our attention by its generally light brown plumage, sleek appearance and unusually upright stance.

Watched—from a car—at approximately four yards range with 8 x binoculars, it looked slightly larger than a Yellow Wagtail (*Motacilla f. flavissima*), a few of which were near at hand, and its almost uniform light brown colour, the relatively long legs and the upright stance were plainly visible. The following plumage details were noted—head brownish-grey with a well-defined pale buff streak over the eye ; mantle, scapulars and the whole wing light brown, the only apparent darker markings being on the secondaries. No white on the outer tail-feathers was seen. The throat was light buffish-brown, the pale coloured breast and flanks showed no signs of streaking whatever, the bill was brown, and the legs conspicuously pale pinkish-brown.

The bird was stationary when first seen and displayed a slow but regular up and down movement of the tail. It was then observed to run extremely quickly to and fro, then in one direction for some ten yards, and, still maintaining its upright stance, easily outstripped a Yellow Wagtail close by. We both remarked that on no previous occasion had we seen a bird of its comparativ size run so rapidly. It then perched in full view on a grass mound about ten yards distant.

With a repetition of the extremely quick running the bird was temporarily lost to view in longish grass, but soon re-appeared in flight about 20 yards away, giving clear Yellow Wagtail-like notes which Mr. Gait and I simultaneously remarked upon. They only differed from those of that species in being louder, deeper and more musical. It is particularly desired to emphasize here the similarity of the call to that of the Yellow Wagtail. Seen in flight—which was noticeably undulating and of long deep sweeps—the bird looked distinctly light brown.

Having carefully consulted *The Handbook* we fully realize that the Tawny Pipit has very seldom been reported in the British Isles in spring, but these are the observations as we made them.

BERNARD KING.

"INJURY-FEIGNING" OF MEADOW-PIPIT.

WITH reference to the notes on this subject (*antea*, pp. 20, 177 and 310), I have in my notes a record of an instance of " injury-feigning " by the Meadow-Pipit.

On April 26th, 1936, I found the nest of a Meadow-Pipit (*Anthus pratensis*) in a tuft of grass on the sand dunes of the Lincolnshire coast. The hen, when disturbed, rose about two feet into the air, then dropped to the ground, fluttering along trailing a wing for some five or six yards before flying on for a short distance.

This behaviour was exactly repeated at each subsequent visit to the nest.

E. L. ROBERTS.

[In spite of the previous scarcity of published records we think it can now be considered established that "injury-feigning" by Meadow-Pipits is not uncommon.—EDS.]

NORTHERN TREE-CREEPER IN LINCOLNSHIRE.

On March 13th, 1947, a Tree-Creeper was obtained at Northcotes, Lincolnshire, two and a half miles from the sea.

I am informed by Mr. J. H. Stubbs that in a life-time in this district, he and his brother, Mr. Foster Stubbs, can only remember seeing the bird on two other occasions, while he informs me further that one other example was seen at the same place in December, 1946.

The first which was seen, was obtained, and this belongs to the British race, the date of its capture being January 11th, 1933. The second referred to above was a sight record and a racial determination was not possible.

The third and present example has been matched with topotypes of *Certhia f. familiaris* from Uppsala, Sweden, for the loan of which I am indebted to Col. R. Meinertzhagen, and agrees perfectly. It is the second recorded specimen for England, and the sixth for the British Isles.

The bird is a male, and has the following measurements:—wing, 64 mm. ; bill, 20 mm. ; tarsus, 16 mm. ; tail, 53 mm.

JAMES M. HARRISON.

WILLOW-TIT IN LINCOLNSHIRE.

As there are few authentic records of the occurrence of the British Willow-Tit (*Parus atricapillus kleinschmidti*) in Lincolnshire, it may be of interest to note that I watched birds of this species in several localities close to Lincoln during the summer of 1946. There seems little doubt that it is also a breeding species, as a nesting-hole was found near Scothern, as well as other excavations in old stumps, and a family party was watched in August. Birds were watched and partly excavated holes found at Cranwell, and other birds observed at Langworth and Welton ; a family party with Long-tailed Tits at the latter locality in September.

I may add that I am familiar with this species in several other counties and have frequently found their nests. J. SIDNEY ASH.

BLACK-EARED WHEATEAR IN DEVON.

ON May 3rd, 1947, my father and I identified a male Black-eared Wheatear (*Œnanthe hispanica*) on the eastern slopes of Musbury Castle, Seaton, south-east Devon. It was later also observed by the Rev. F. C. Butters and Mr. A. L. W. Mayo.

The bird was watched at leisure through binoculars at close range and in a very good light. It frequented a narrow strip of ploughed wasteland and the surrounding area of recently burnt gorse and bracken bordered by tall trees, in which it often perched. No call or notes were heard.

The Rev. F. C. Butters, whom I informed later the same day, watched the bird on May 6th after I had had to leave the district. The following description is from our combined notes. The bird was seen from all angles on the ground, perched on trees, gorse, bracken, etc., and in flight. The size, build and flight were as Common Wheatear (*Œ. œ. œnanthe*). It was a male of the black-throated form. The general effect was of the contrasting warm buff of nape, mantle and back with the black wings, cheeks and throat. Seen from head on, the pale grey to whitish forehead, crown, breast and belly were noticeable. When it alighted on the ground and took quick darts for insects the pure white rump and almost white tail were strikingly displayed. Once at rest the bird expanded its tail and the bar of black in the centre emphasized the white feathers on either side. The black mask extended from the base of the bill slightly above the eye, back towards the nape and under the chin and throat. Seen in profile the black of the throat nearly merged into the black of the wing-coverts ; although in extent it appeared intermediate between the examples of the Western and Eastern races figured in *The Handbook*, it more closely approximated to the former. This, together with the absence of black on the lower forehead and the markedly warm tone of the mantle, led us to the conclusion that it was probably of the typical race, *Œ. h. hispanica*. A. D. G. SMART.

PROBABLE SINGING BY FEMALE GRASSHOPPER-WARBLER.

FOR a number of years it has been my firm conviction that the female Grasshopper-Warbler (*Locustella n. nævia*) can, and does, on occasions, sing in the same manner as the male. I have never seen this fact asserted by any other observer and had hoped to obtain further evidence before publishing any note, but—unfortunately—

Grasshopper-Warblers have declined in numbers to such an alarming extent in their Surrey breeding-haunts of recent years that the probability of hearing a bird at all is quite small. The reason for this reduction in numbers I cannot account for and it would be interesting to hear whether ornithologists in other parts of the country tell the same story. It is true that certain areas the birds formerly favoured have been ploughed up by the War Agricultural Executive Committee, but there are still other highly suitable, unploughed areas where they previously bred fairly freely which now—in most cases—do not hold a single pair. 1938 was a good year for birds, but there was a marked decrease in 1939 followed by further reductions during the War.

It will be appreciated that when dealing with a species so secretive and—to a large extent—crepuscular in habits as this, and one in which the plumage of male and female is—to all intents and purposes—identical, evidence of behaviour observed in the field must be largely circumstantial.

The possibility of singing by female Grasshopper-Warblers first came to my notice during early June, 1937. I was watching a bird singing strongly, during the early evening, from a small hawthorn bush. After a time, a second bird was heard to start up, some 50 yards away and I caught sight of it as it crept across a patch of dead bramble—making its way towards the first bird. Having crossed the brambles, it re-entered the luxuriant growth of dank grass and I lost sight of it, but it continued singing whilst it threaded its way nearer, through the grass, and eventually reached the bush in which the first bird was still singing. For a short time, there were two birds singing in the bush, but shortly the song of one ceased and that of the other took on the high-pitched timbre usually uttered at times of sexual excitement. Almost immediately afterwards song ceased completely and the two birds flew out, chasing one another low over the grass and I ultimately lost sight of them.

It may be argued that the observation was that of two males consorting together and I am willing to admit the possibility. Nevertheless, the possibility of singing by the female had been established in my mind and the series of very singular and interesting circumstances witnessed during the following season made that possibility more of a certainty.

Towards dusk on May 25th, 1938, whilst walking past a large clump of blackthorn in typical "grasshopper" country, two birds were seen to chase one another into the clump and immediately afterwards song commenced in the clump. One bird only sang at first and then the second started and for quite two minutes *there were undoubtedly two birds singing together in the clump*. After this time, one bird ceased and it was seen to leave the clump and fly to a spot in the grass, some 25 yards away. The bird remaining in the clump continued to sing the whole time ; that which left the clump started singing again immediately it had pitched in the grass and for about half-a-minute, *the bird left in the clump and that in the grass were singing together.* The bird in the grass then ceased singing and after a few minutes I walked over and flushed it from the spot. It did not come up from a nest, however, as I had thought it might, and it was too dark for further investigation that evening.

The following evening, I returned to the same spot at about the same time as I had arrived the previous day, as it was my belief that I had caught the birds returning from their evening feeding and, in all probability, their behaviour would be similar. On this occasion, the cock (presumably) was already singing lustily in the blackthorn thicket, but after a short time his song developed that excited quality which I usually associate with the presence of the hen and I realized there were now two birds in the clump, although I had not seen the second arrive. No doubt it had crept through the grass and up into the clump without my seeing it. Almost immediately afterwards, the birds chased one another low over the grass and I lost sight of them. They were away about 15 minutes and then I saw them return and fly quickly into the clump as before. On this occasion, however, only one bird sang whilst they were both in the clump. Shortly, the hen (presumably) flew over to the same spot to which she had gone the previous evening and immediately burst into song. For the space of about 30 seconds, *the bird in the clump and that in the grass were singing simultaneously.* The bird in the grass soon stopped and on this occasion I gave her considerably longer before I went over to investigate. On doing so, I flushed her from a nest and four eggs built several yards further on from where I had flushed her the previous evening. The bird in the clump continued to sing vigorously.

I would emphasize that I have a very good "ear" for bird-song and discount any possibility of the ventriloquial powers of the species having misled me. Since the above described observations, I have witnessed no further evidence in support of the assertion, but, as stated earlier, birds have been extremely scarce of recent years and those that do occur (possibly through lack of competition) utter very little—if any—song at all. H. J. HOFFMAN.

NEST DECORATION BY COCK WHITETHROAT.

WITH reference to the note on this subject (*antea*, p. 215) the following observations may be of interest.

During the spring and summer of 1946, I made a study of several pairs of Whitethroats (*Sylvia c. communis*) at Englefield Green, Surrey. The males arrived some time before the females and in four cases, under special observation, commenced building on the day after arrival. In every case decoration was added, consisting mainly of spiders' cocoons, several days before the females arrived. Indeed this decoration was affixed on the second and third days of construction before the cup of the nest was completed. When the females arrived all four nests were lined and occupied, but no more decoration was added.

These facts seem to show that the decoration of nests by the cock is of regular occurrence, and that the female does not add more decoration to a nest already decorated by the male. A. MANNING.

REFERRING to nest decoration by cock Whitethroats (*antea*, p. 215) may I say I find this a fairly common habit in S.E. Kent.

This year I have examined two nests of this species lavishly decorated with vegetable down, and as usual in those cases the nests were more heavily constructed than the nests which contain eggs. On all occasions of nests being constructed by the male no hen had been seen in the near vicinity. G. E. TOOK.

[It seems now sufficiently established that this habit is a regular one.—EDS.]

SPOONBILL IN HERTFORDSHIRE.

ON May 9th, 1947, I saw a pure white bird, which subsequently proved to be a Spoonbill (*Platalea l. leucorodia*), flying over the Wilstone Reservoir, Tring. Later I noticed it resting partially concealed in the reeds at a considerable distance from the nearest point to which I could approach. It was apparently asleep with the bill tucked under the wing and remained so for about an hour, but eventually I succeeded in arousing a Heron which had been resting near it and this in turn woke the Spoonbill, which began preening. Although it was still much conçealed by reeds, I could now see its long neck—not so long as the Heron's—and when it rubbed its bill over its back the spatulate shape was obvious against the white.

After a quarter of an hour both the Heron and Spoonbill took flight and began circling the reservoir to gain height. At times they passed directly above me and the characteristics of the Spoonbill were well seen. The flight was slow and somewhat similar to the Heron's. They seemed about the same in body size, but the more pointed wings of the Spoonbill seemed to be about three-quarters the span of the Heron's. The neck and long black legs were both outstretched. From side view the bill looked narrow and seemed rather peculiarly dropped below the level of the head. They appeared to be heading roughly north-eastward towards Ivinghoe, but owing to the strong wind drifted away more to the westward and I finally lost them beyond Wilstone village in a more north-westerly direction. The bird had a well-marked crest and no black wing-tips, so was obviously adult. I did not see any yellow at the base of the neck, but while on the ground it always had its back to me.

I understand there is no previous record for Hertfordshire.

J. N. HOBBS.

PATTERING ACTION OF LAPWING WHEN FEEDING.

With reference to the note under the above heading (*antea*, p. 125), while serving with the Royal Observer Corps during the war, I often observed Lapwings (*Vanellus vanellus*) performing this action while searching for food. The ground was rapped firmly with one foot, and the bird would look and/or listen intently before moving on to repeat the action.

I always imagined the intention behind the movement was to attract or disturb beetles, worms or other likely food.

Wm. Johnson.

[As indicated in our previous editorial note it seems likely that the behaviour in question, which has been recorded in other waders, is not really unusual in the Lapwing. But it should be noted that the actions described by our two correspondents are not identical. What the previous recorder, Mr. C. W. Holt, referred to was "an extremely rapid almost vibratory movement." It may be added that since Mr. Holt's note was published our attention has been drawn to an early reference to the Lapwing's habit of "patting the ground with its feet" to bring up earthworms, in Loudon's *Magazine of Natural History*, Vol. I (1828), p. 374.—Eds.]

Early Wood-Warbler in Hampshire.—Mr. Philip E. Brown sends us details of a Wood-Warbler (*Phylloscopus sibilatrix*) watched and clearly identified on April 4th, 1947, feeding in the shelter of a waterlogged hollow amongst furze and brambles on the edge of Silchester Common, Hampshire. All the distinctive characters—pronounced and brilliant eye-stripe, very yellow breast and white belly, etc.—were clearly seen, as well as the marked size difference in comparison with a Willow-Warbler (*P. t. trochilus*) which was present at the same time.

Little Gull in Cheshire following plough.—Mr. R. C. R. Allen informs us that on March 27th, 1946, while he was driving a tractor, "disking" a field in preparation for potatoes, near Northwich, Cheshire, an immature Little Gull (*Larus minutus*), of which he has sent a full description, joined three Black-headed Gulls (*Larus r. ridibundus*) which were feeding behind the tractor and followed him for about half an hour. Miss R. M. Roper (*antea*, Vol. xxxix, p. 190) recorded a similar occurrence on two occasions in Essex, when Little Gulls followed her plough.

Herring-Gulls nesting on buildings.—In the note under this heading (*antea p.* 255) recording nesting on piers at Brighton during the war, reference was omitted to another case of breeding on a pier (at Bridlington) recorded in the Yorkshire Report for 1944 and noticed in *Brit. Birds*, Vol. xxxviii, p. 379. The recently published Report of the Cornwall Bird Watching and Preservation Society for 1946 also contains particulars of Herring-Gulls nesting on buildings in Newquay, where they have done so for many years.

REVIEWS.

British Game. By Brian Vesey-Fitzgerald. (The New Naturalist series, Collins, London, 1946). Price 16s.

This is the first of the *New Naturalist* series to be concerned primarily with birds. It is not exclusively so concerned because mammals are also included, and it may be observed that even as regards birds the title is interpreted in as wide a sense as possible to comprise not only the gallinaceous birds, ducks, snipe and woodcock, but swans, geese and the game of the shore-shooter, as well as the predators which with varying degrees of justice are regarded as the enemies of game. The members of the pheasant and grouse families, to which the term game-birds is particularly applied, naturally take pride of place. The author would probably not claim that his work materially advances our knowledge of the biology of these birds, which in many respects is not remarkably well known considering the amount of money and energy devoted to the propagation of some of them for shooting purposes ; but he provides a pleasantly written and interesting popular account of them with a fair share of personal observation of the rather general kind that one looks for from the sportsman-naturalist, who goes about the country with his eyes open. On subjects which have specially attracted his interest, such as the natural history of the Red Grouse and grouse moors, there is more than this : his opinions and conclusions on a number of questions of interest to both sportsmen and naturalists merit close attention by reason of their obvious backing of wide experience and sound judgment. Both here and in some other sections even the ornithological specialist will find points to be noted now and again : we may mention, for example, the remarks on the roosting of Partridges and the record of Woodcock roosting in trees. So much cannot unfortunately be said for all the chapters : that on the ducks especially is sadly unoriginal, and readers who are so disposed may even derive some entertainment from comparing such passages as the description of the haunts of the Mallard or the general notes on the surface-feeding and diving ducks with *The Handbook.* In fact this section has all the appearance of having been hastily and perfunctorily put together.

The statement with reference to the Lesser White-fronted Goose (evidently written before the 1945-6 occurrences on the Severn) that there are two British records " about which there is no doubt " seems to require at least some amplifying in view of the fact that the second one is rejected by both *The Handbook* and the B.O.U. List as not completely satisfactory, and in the list of British records of the Red-breasted Goose a fully authenticated and duly recorded occurrence on the Severn in 1941 is overlooked. There are some other statements which can only be ascribed to carelessness. The chapter on the Capercaillie opens with the surprising remark that "Alone amongst British members of the grouse family the Capercaillie has not achieved sub-specific status"; seeing that our British stock was only introduced from Sweden just over a hundred years ago—a fact duly noted on the same page—it would indeed be astonishing if it had ! A reproduction of a painting by Peter Scott appears over the caption "Bernicle Geese with Snow Goose," although it is obvious at a glance that the white bird is an albino Barnacle. The three annual plumage changes of the Ptarmigan are not "each acquired by a complete moult"; only the autumn one is complete. The Red-breasted Snipe, far from having occurred "only six times", has been reliably recorded on well over twenty occasions.

It may be said with some justice that these defects do not matter much to the non-specialist reader for whom the book is no doubt primarily intended, but they will hardly enhance its standing with the more critical and they do mean that ornithological statements in it cannot be implicity relied on by amateur naturalists using the book, which is a pity. Indeed it may well be said that the real value of the book lies not so much in its contribution to British natural history in the stricter sense of the term as in the author's admirably sane, sound and far-sighted treatment of the subject of game preservation, gamekeepers, predator control, the decrease of wildfowl, and related questions. It is an excellent thing to have included a discussion of these matters in the book and what Mr. Vesey-Fitzgerald has to say on them is founded on a wide and intimate experience and written with a very well balanced appreciation of the legitimate interests of sport on the one hand and wild-life conservation on the other. He is peculiarly well placed for seeing both sides of the question and he suffers neither from the uncritical sentimentality of some conservationists nor from the tendency, common in shooting men, to gloss over or ignore the undoubted sins and ignorances of the sporting community in the selfish and unintelligent slaughter of animals supposed to be inimical to their interests and in aiming at securing bigger bags than the ground will carry. His discussion can be whole-heartedly commended to the careful consideration of all, and especially sportsmen, who are interested in the future of game control and preservation, and we share the editors' "hope and belief that this book will be a useful contribution to the solution of some of the problems that lie ahead."

The book is liberally illustrated by a good and comprehensive series of photographs and coloured reproductions of plates from John Gould's *Birds of Great Britain*, of paintings by modern artists and early sporting pictures

Darwin's Finches. By David Lack. (Cambridge University Press, 1947). Price 21s.

Mr. Lack's new book deals with birds of a part of the world about as remote from the British Isles as possible. Yet it is, or should be, of the utmost interest to every ornithologist, British or otherwise, because its subject is absolutely basic in any serious study of ornithology, as in that of all other groups of living things, namely evolution and the origin of species.

Mr. Lack was the chief ornithologist member of a small expedition which visited the Galapagos Islands just before the war with the primary object of studying the peculiar group of finches, the *Geospizinæ*, which are the subject of this book and which present an evolutionary problem of exceptional interest. This group of birds, together with the rest of the peculiar Galapagos fauna, played a fundamental part in the development of Darwin's views on evolution, and since his day they have been the subject of repeated discussion by zoologists and ornithologists on account of the extraordinary and puzzling features which they present.

Mr. Lack opens with what he himself describes as "a brief and depressing description" of the islands, which will serve to disillusion those who may have imagined the Galapagos, with their admittedly fascinating fauna of giant tortoises, sea iguanas and other strange creatures, as a kind of naturalists' paradise. The next ten chapters are mainly devoted to description of the birds and the following five to an evolutionary interpretation of the facts. With the exception of a single species on Cocos Island some 600 miles away, the Geospizids are confined to the Galapagos, and in this circumscribed group of islands Lack recognizes no less than 13 species. (Swarth, the latest systematic authority, recognized even more, some of which are relegated in the present work to the status of sub-species, but since new species evolve from sub-species differences of this sort in the treatment of borderline cases entail no fundamental disagreement). Most of the species occur on more than one island and each island supports from three to ten species. All appear to have evolved from a single ancestral form, which probably reached these volcanic islands before any other land bird, and in the absence of competition and comparative freedom from predators the stock has given rise to some curiously unfinch-like forms, such as the woodpecker-like *Camarhynchus pallidus* and the warbler-like *Certhidea*, as well as a number of more normal fringillid types, which differ from one another mainly in the form and stoutness of their beaks. Some of these show an astonishing degree of individual variation in the beak. In several cases the beak differences between extreme individuals of what is unquestionably a single species are of the order "found between members of different species or even different genera in typical passerine birds," and there may actually be an overlap in bill characters between extreme forms of different species. In addition anomalous specimens and specimens intermediate between two species, though rare, are less so than amongst other birds. All this amounts to a situation very confusing to the systematist and puzzling to the student of evolution and has led to suggestions that in order to account for such a diversity of forms in a limited area some quite peculiar method of evolution must have been involved, such as extensive hybridization between a few original species, of which in fact there is no evidence whatever.

Mr. Lack's method was to approach the problem through a close study of the ecology and habits of the birds in the field, which was followed up by an intensive study of museum material in the principal American collections and in London. A somewhat fuller and in some ways more technical account of the work has appeared previously in the *Occasional Papers of the California Academy of Sciences* (1945), but since writing this the author has modified his conclusions on certain material points, notably on the adaptive nature of the beak differences referred to below, and it is emphasized that on such points the book represents a more mature opinion.

It was found that closely allied species were not generally isolated from one another by having distinct habitats, nesting-sites or breeding-seasons. The courtship behaviour of all is closely similar and the songs are much alike in the different species, yet markedly variable individually in the same species. The author at first accepted the view of several earlier workers that the differences in size of bill between closely allied members of the group were not adaptive in the sense of being related to differences in food, and this view seemed to gain support from the interesting discovery that the beak differences afford the main recognition marks between species. For good reasons explained in the book he has now changed his views on this point : it is concluded that the beak differences between closely related forms are due to their taking food of the same general nature, but of different size.

As regards the evolution of the group the author, unlike previous writers except Stresemann, reaches the conclusion that species formation has followed the same course as in other birds, without the intervention of any peculiar genetic factors. In other words, new forms have arisen in geographical isolation on different islands and subsequently, extending their range, have met and kept distinct. Where the peculiar factors lie is in the inaccessibility of the archipelago (the absence of winds blowing from the mainland may be important), resulting in the evolving Geospizids being free from competition with other passerines, "which has permitted an unusually great degree of ecological divergence between forms, and thus has allowed an unusually large number of related species to persist alongside one another without competition." The argument is so convincing that it seems not too much to say that although many points of interest require further investigation the main evolutionary problem of the Geospizids is settled.

It is to be hoped that few amateur ornithologists will be deterred from reading this excellent and absorbing book by the notion that Darwin's Finches are something too remote to concern them. It is—the second part especially—one of the most illuminating discussions of the evolution of species in birds available in a form accessible and intelligible to the general reader. In a review like the present it is impossible to touch on all the interesting and important issues involved, but in any case an attempt to do so would be a mistake, because every serious ornithologist should read it in the original.

For those who wish to delve into the subject more deeply there are extensive tables of measurements and other technical data at the end, and the book is very fully indexed.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

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THE EXCEPTIONAL PASSAGE OF CURLEW-SANDPIPERS AND LITTLE STINTS IN THE AUTUMN OF 1946

BY

JOHN GIBB AND B. W. TUCKER.

We have received information from a number of correspondents with reference to the exceptional inland passage of Curlew-Sandpipers (*Calidris testacea*) and Little Stints (*C. minuta*) in the autumn of 1946, to which we have already referred (*antea*, p. 60). It will be noticed that the exceptional numbers involved were largely concentrated at a few localities, notably the Nottingham, Northampton and Altrincham (Cheshire) Sewage Farms, which together account for about 30 per cent. of all the Curlew-Sandpipers and 65 per cent. of all the Little Stints observed. It may be worth noting as possibly significant that not a single example of either species was observed at the Tring reservoirs or at those of the London or Birmingham districts or of Somerset. We understand that at Tring, where both have been repeatedly observed in other years, the conditions were not very favourable, and we notice that at the Somerset reservoirs hardly any waders were recorded in the autumn of 1946, so that the same may have been the case there, but in the London district, at any rate, a number of other waders were reported.

In order to give an indication of the relative numbers present during the course of the autumn a table has been prepared in which the number of birds recorded in each quarter-monthly period of the months September and October or during the whole month in the cases of August and November, when the numbers were small, are represented as percentages of the figure obtained by adding all the period totals together. A very few cases of records received very late or extracted from county reports have been added since this table was prepared, but they are much too few to affect the general picture. As in some cases the same birds were no doubt observed in two or more such periods it will be realized that the grand totals obtained in the manner indicated and given in the final columns do *not* represent a "census" of the birds observed. It is, however, clearly shown that the Curlew-Sandpiper numbers were at their height in the second and third quarters of September and thereafter underwent a fairly regular decline, while the Little Stint peak was very definitely in the second week of September, though the numbers were also quite considerable in the third, falling off very sharply at the end of the month, to rise again somewhat at the beginning of October.

A somewhat more precise analysis shows that neither the arrival dates nor the periods of peak numbers at the several main localities provide any very clear picture of a definite movement. It is, however, at least evident that arrivals of Curlew-Sandpipers were

	August (all)	September				October				November (all)	Total Birds
		1-8	9-15	16-22	23-30	1-8	9-15	16-23	24-31		
Curlew – Sandpiper	3·1	11·3	25·9	24·9	18·5	8·8	2·3	3·7	1·4	0·1	943
Little Stint	4·7	17·2	33·5	20·5	3·1	7·4	5·5	5·4	2·3	0·4	257

spread over a considerable period in August and September and that the numbers which visited the sewage farms cannot be attributed to peculiar conditions prevailing merely on one or two days or for a single brief period. The first dates of August 24th (Northants, Yorks.), 25th (Kent, Cambs.) and 26th (Northumberland) show a close agreement, but at Nottingham the first arrival was earlier, namely August 17th, coinciding approximately with the first available date for the coast of Norfolk (August 16th), and for the Eye Valley (Leics.-Rutland), where some also appeared on August 16th. At Altrincham none appeared till August 30th. It may be noted that apart from an isolated July date for Lancashire (24th), August 4th is the earliest date known to us for the season under discussion and on this date one is recorded from the extreme south-west of England, on the south coast of Cornwall.

At Northampton there were already 10 birds by August 31st, but there was a slight increase to 14 on September 14th and a larger rise to about 24 on the 15th. Here there was a second peak of 30 birds on October 5th which did not occur elsewhere. At Nottingham the peak (100+) was reached on September 14th, while at Altrincham there was a sharp rise on the 13th, but the maximum was not reached till the 19th. At the Eye Valley Reservoir the maximum of 10 was reached on the 15th, while at Cambridge 6 birds were observed on September 9th and 7 on the 19th, with smaller numbers on several intermediate days. It might therefore be said that the first large arrival occurred about September 13th, but there was evidently not a single such influx in view of the facts just noted with reference to Altrincham and of the increase at Northampton between the 14th and 15th.

Little Stints, which were markedly less numerous but somewhat more widespread than Curlew-Sandpipers, appeared as early as August 13th at Cambridge and in the third week of the month at Nottingham, and were first recorded on August 25th on Romney Marsh, but at other inland localities were not observed until varying dates between September 1st and 15th. Maximum numbers were reached at Cambridge (8) as early as September 5th, at Northampton (3) on September 7th, at Altrincham (9) on September 9th, at Nottingham (*c.* 40) on September 14th, and at the Eye Valley Reservoir (6) on September 15th. It may be noted that at least 2 birds were present at Altrincham on September 5th and 4 on September 7th, while at Nottingham at least 12 birds seen on September 7th constituted the first record of more than odd individuals. There would thus been a case for concluding that the first considerable overland movement of Little Stints was spread over the period September 5th-7th and affected all the four sewage farms, with a further movement in the second week affecting Nottingham (strikingly), the Eye Valley and probably Cambridge (see details below), but not reflected at all at Altrincham or Northampton. Scattered records from other localities are in conformity with this conclusion. Other movements occurred in October, beginning in the first week and extending into November: the comparatively large number of 15 ar Swillington Ing, Yorkshire, on October 3rd may be noted, but otherwise October numbers were small.

More than this it does not seem possible to deduce from the data with any confidence. Other suggestions and correlations that might be made would be little better than guesses. Moreover it is important to bear in mind the inadvisability of trying to derive over-detailed conclusions about movements from figures such as those before us, owing to the frequent impossibility of deciding whether similar, or nearly similar, numbers of birds seen in the same locality on different days are the same individuals or not. In many cases they unquestionably are and the same party may remain on a good feeding area for a considerable time, but in others it is equally certain that birds which might not unnaturally be assumed to be the same are in fact different. A special form of this difficulty presents itself when two neighbouring dates on which the same or comparable numbers are observed are separated by one on which a definitely lower number or none is seen. Are two different movements involved in such a case or is the apparent drop on the intermediate date merely the temporary result of disturbance ? It is by no means always possible to decide.

It will thus be obvious that what we have called "over-detailed conclusions " above may easily go astray on correspondences which are in fact fortuitous and differences which are in fact unreal and we shall therefore not attempt to press analysis further. One or two other points may, however, be made. It has been shown that substantial arrivals of Curlew-Sandpipers were spread over a considerable period in August and September with a minor movement at the beginning of October, whereas the appearances of Little Stints could be accounted for by two main movements in the first half of September, with minor ones in October. Even the peaks for the two species do not coincide, so that the factors involved, though no doubt similar and inter-connected, cannot have been identical. As shown below, the two species were exceptionally numerous also on the coast in the autumn of 1946. The question thus arises whether the exceptional numbers seen inland were simply a reflection of the exceptionally heavy passage in Great Britain (assuming that in any passage movement over a suitable feeding-ground the number settling will bear a certain rough relation to the total number passing) or whether conditions in some ways peculiar led to an exceptionally high proportion of birds settling. These questions are difficult to answer, but they seem worth formulating nevertheless. Both factors could, of course, have operated together, and the extraordinary numbers of Curlew-Sandpipers at Nottingham and Altrincham suggest that they did. But the fact already stressed that the numbers of Curlew-Sandpipers observed cannot be attributed to peculiar conditions prevailing merely on one or two days or brief periods seems to indicate that the first-mentioned factor was certainly important.

KENT.—The following are recorded from Romney Marsh.

Curlew-Sandpiper. Two, Barn Fleet, Aug. 25th ; five, Aug. 27th ; five or six, Sept. 9th (E. A. Blake, E. M. Cawkell) ; eight, Fairfield Brack, Oct. 6th ; one, Oct. 8th (J. S. S. Beazley).

Little Stint. Four, Cheyne Court Fleet, Aug. 25th (N. F. Ticehurst) ; two, Barn Fleet, Sept. 9th ; seven, Sept. 12th ; twelve, Sept. 14th ; about six, Oct. 13th (E. A. Blake).

The two fleets are each three miles from the sea and Fairfield Brack 5½ miles. Occurrences in these localities are exceptional, particularly in such numbers. There were other records of both species from the coast (N.F.T.).

BERKSHIRE.—*Little Stint.* Four, Ham Fields Sewage Farm, Sept. 9th ; one, Sept. 13th (A. Manning, D. J. May, J. O. Owens).

CAMBRIDGESHIRE.—Cambridge Sewage Farm was visited almost daily from Aug. 12th to Nov. 23rd and the following were recorded.

Curlew-Sandpiper. One, Aug. 25th to 27th ; two, Aug. 28th to 30th ; one, Sept. 5th to 7th ; varying numbers from three to six, Sept. 8th to 12th ; seven, Sept. 19th ; three, Sept. 21st ; four, Sept. 29th ; two to four, Oct. 5th to 9th ; one, Oct. 11th and 12th and 14th to 16th.

Little Stint. Two, Aug. 13th ; one, Aug. 15th and 25th ; eight on most days from Sept. 5th to 7th ; four, Sept. 9th ; eight, Sept. 10th and 11th ; two, Oct. 1st; two or three, Oct. 7th to 13th; one, Nov. 20th (R. A. Hinde, A. S. Thom, J. A. McRitchie, J. M. Wallace, R. D. Keynes, A. Bull, C. W. G. Paulson, R. J. Foster, R. H. Adrian).

NORTHAMPTONSHIRE.—The following all refer to Northampton Sewage Farm.

Curlew-Sandpiper. One, Aug. 24th (R. W. M. Lee) ; two, Aug. 25th ; ten, Aug. 31st, Sept. 1st and 8th ; fourteen, Sept. 14th ; twenty-four, Sept. 15th ; eight, Sept. 21st and 22nd ; five, Sept. 28th ; none, Sept. 29th ; thirty, Oct. 5th ; one, Oct. 6th ; four, Oct. 20th and 26th (R. E. Burton and B. W. Tucker). Also about twenty-five, Sept. 19th (R. H. Baillie) and two, Oct. 19th (R. W. M. Lee).

Little Stint. Three, Sept. 7th ; two, Sept. 8th ; three, Sept. 15th and 19th : (R. H. Baillie) ; one, Oct. 5th ; two, Oct. 12th ; three, Oct. 20th (R. H. Burton and B. W. Tucker).

STAFFORDSHIRE.—*Little Stint.* One at Bellfields Reservoir, Sept. 5th (R. J. Foster).

NOTTINGHAMSHIRE.—The following is a summary from the records of local and visiting ornithologists of the unusual numbers on the Nottingham Sewage Farm.

Curlew-Sandpiper. Odd birds from Aug. 17th ; twenty-five to twenty-seven, Sept. 8th ; at least one hundred, Sept. 14th ; over seventy, Sept. 22nd ; one hundred in two flocks of seventy-two and twenty-eight, Sept. 28th ; eighteen, Oct. 5th ; ten, Oct. 19th ; eight, Oct. 27th. The birds gave excellent close views and the large numbers were checked with particular care.

Little Stint. Odd birds in last two weeks of August ; at least twelve, Sept. 7th and 8th ; forty, Sept. 14th and about the same, Sept. 22nd ; nine, Oct. 5th ; eight, Oct. 19th ; five, Oct. 27th. (J. Staton).

LEICESTERSHIRE-RUTLAND.—*Curlew-Sandpiper.* A few at Eye Valley Reservoir, Aug. 16th; one, Sept. 1st and four, Sept. 2nd; ten, Sept. 15th and one until Sept. 23rd.

Little Stint. Six at Eye Valley Reservoir, Sept. 15th ; one there until Sept. 23rd (*per* F. A. Bak).

CHESHIRE.—The following observations refer to the Altrincham Sewage Farm, which was visited almost daily by several observers for two months.

Curlew-Sandpiper. The peak period was the third week of September, when the maximum number of a hundred and four was very carefully counted and checked by R.H.P. There were remarkable fluctuations throughout the period, often even between the number seen in morning, afternoon and evening of the same day. For this reason the daily figures are quoted in full : one, Aug. 30th ; two, Aug. 31st and Sept. 1st ; ten, Sept. 4th ; at least twenty-four, Sept. 5th ; twenty-three, Sept. 6th ; twenty, Sept. 7th ; forty, Sept. 8th ; forty-six, Sept. 9th ; thirty, Sept. 10th ; thirty-five, Sept. 11th ; six, Sept. 12th ; sixty-two, Sept. 13th ; thirty-four, Sept. 14th ; sixty-eight, Sept. 15th ; thirty-two, Sept. 16th ; one hundred and four, Sept. 19th ; fifty-two, Sept. 20th ; thirty-eight, Sept. 22nd ; forty-four, Sept. 23rd ; four, Sept. 28th ; twelve, Sept. 30th ; one, Oct. 6th ; two, Oct. 7th ; three, Oct. 8th ; fourteen, Oct. 10th ; twelve, Oct. 12th ; fourteen, Oct. 13th ; fifteen, Oct. 14th ; twenty-one, Oct. 15th ; twenty, Oct. 17th ; twelve, Oct. 18th ; five, Oct. 19th ; two, Oct. 20th ; to 26th ; one, Nov. 3rd.

Little Stint. One, Sept. 1st ; at least two, Sept. 5th ; four, Sept. 7th ; six, to eight, Sept. 8th ; eight, Sept. 10th to 15th ; two, Sept. 19th and 20th ; one, Sept. 23rd ; three to four, Sept. 30th to Oct. 12th ; five, Oct. 13th ; three, Oct. 14th to 18th ; two, Oct. 19th ; one, Oct. 20th to 26th (A. W. Boyd, R. H. Prestwich, R. H. Dunt, J. Southern, A. R. Sumerfield, E. L. Arnold, H. Bell, N. W. Cusa).

The following records are for other localities in Cheshire.

Curlew-Sandpiper. Five, Sale Sewage Farm, Sept. 12th (J. M. Howard).

Little Stint. Six, Sale Sewage Farm, Sept. 12th (J. M. Howard). Four at Frodsham, Oct. 14th (A. W. Boyd).

LANCASHIRE.—*Curlew-Sandpiper.* One at Astley, July 24th (J. Southern). Four, Thelwall Eye, Mersey Valley, Sept. 8th (E. L. Arnold). Regularly about twenty at Worsley, Sept. 7th to October 8th ; maximum of twenty-eight on Sept. 20th (L. L. Turner). Forty-two, Cuerdley Marsh, on N. bank of Mersey, Sept. 23rd (E. Ward).

Little Stint. Five at Worsley, Sept. 7th ; three, Sept. 11th ; seven, Sept. 17th ; two, Sept. 27th (L. L. Turner). Eight, Thelwall Eye, Sept. 8th ; five, Sept. 13th (A. W. Boyd, E. L. Arnold).

YORKSHIRE.—*Curlew-Sandpiper.* Two, Swillington Ing, Aug. 24th (J. E. Beckerlegge) and 26th (J. E. B., H. Cresswell, D. Archer). Three at Dewsbury Sewage Farm, Sept. 5th (J. K. Wainright). One, Vale of Pickering, Oct. 1st (R. M. Garnett).

Little Stint. Six, Dewsbury Sewage Farm, Sept. 5th (J.K.W.). Sixteen at Swillington Ing, Oct. 3rd ; two, Oct. 6th ; one, Oct. 27th ; two, Oct. 30th and 31st ; one, November 2nd and 4th (J. K. W., K. Dawson). One, Vale of Pickering, Oct. 1st (R.M.G.).

DURHAM.—*Little Stint.* One, Darlington Sewage Farm, Sept. 10th (W. E. Almond, M. G. Robinson).

Reports from the coast or tidal estuaries were not asked for, but from information sent in by several correspondents or published in such local reports as are available at the time of writing it is evident that the autumn of 1946 was a particularly good season for both these species on the coast, so that the inland occurrences were not purely due to special conditions leading birds migrating overland to settle (*cf.* p. 356). It may be convenient to append a brief summary of available data from the coast or tidal waters.

Curlew-Sandpiper. CORNWALL.—Up to 30 on Camel estuary in mid-September ; at least six, Devoran, Fal estuary, Sept. 23rd ; other records of smaller numbers. (Cornwall Report). Not recorded from Cornwall every year. I. OF WIGHT.—Six, Newtown, Aug. 24th (Mrs. J. B. Priestley). KENT.—Records of small numbers up to ten (N.F.T.). NORFOLK.—Up to *c.* fifty, Cley-Salthouse in mid-Sept. (R. J. Foster) ; numbers in August remarkable, estimated on some days to represent half of small waders present (Norfolk Report). Up to *c.* forty positively identified, Blakeney, Sept.-Oct.; probably a good many more (G. H. Hunt). GLOUCESTERSHIRE.—Up to ten or twelve on New Grounds, Severn, in mid-Sept. ; one or two at Severn Beach (Bristol Report). FLINTSHIRE.—Ten to twelve, Point of Ayr, Sept. 7th (R. S. R. Fitter). ANGLESEY.—Eleven at Malldraeth, Sept. 19th (N. W. Cusa). YORKSHIRE.—Present at Spurn, early Sept., and five, Oct. 28th (Yorks. Report). NORTHUMBERLAND-DURHAM.—More reported than for several years past ; maxima *c.* forty, Fenham Flats, Sept. 16th and at least thirty-six near Jarrow, Sept. 15th (N. and D. Report). WESTMORLAND.—Eight, Kent estuary (J. A. G. Barnes).

Little Stint. CORNWALL.—Up to four, Camel estuary, Sept. 11th ; other records of ones and twos (Cornwall Report). KENT.—Recorded on coast (N.F.T.). NORFOLK.—Up to *c.* twenty, Cley-Salthouse in mid-Sept. (R. J. Foster). Up to twenty, Blakeney (G. H. Hunt). GLOUCESTERSHIRE.—Up to five, New Grounds, Severn (Bristol Report). YORKSHIRE.—Single birds at Spurn in Sept., eleven on Oct. 11th (Yorks. Report). NORTHUMBERLAND AND DURHAM.—More than for many years ; all juveniles. Maximum recorded, eight, Alnmouth (N. and D. Report). WESTMORLAND.—Seven, Kent estuary (J. A. G. Barnes).

RECOVERY OF MARKED BIRDS

COMMUNICATED BY

E. P. LEACH.

Hon. Sec. Bird-Ringing Committee, British Trust for Ornithology.

Raven (*Corvus c. corax*).

No.	*Ringed.*	*Recovered.*
402286	Skomer (Pem.), 9.8.46. Ad. by Skokholm Bird Obs.	Whitland (Carms.), 30.8.46. [31 m. ENE.].

Starling (*Sturnus v. vulgaris*).

RINGED AS YOUNG

TS.260	Great Budworth, (Ches.), 14.5.46, by A. W. Boyd.	Caerleon (Mon.), 19.2.47. [115 m. S.].

RINGED AS FULL-GROWN.

SC.929	Anstruther (Fife), 15.12.46, by W. J. Eggeling.	Dumbarton, 1.3.47. [77 m. WSW.].
X.2847	Cleveleys (Lancs.), 10.2.47, by R. M. Band.	Vanga, Östergötland, Sweden, 20.4.47.
SK.258	Wigan (Lancs.), 13.1.46, by Bootham Sch.	Farndon, (Notts), —.6.47. [82 m. SE.].
TX.844	Douglas (I.O.M.), 18.1.47, by Cowin, Crellin, Ladds and Williamson.	Barnoldswick (Lancs.), —.5.47.
SK.205	York, 8.12.45, by Bootham School.	Korsör, Sjaelland, Denmark, —3.46.
X.5071	Shrewsbury, 21.2.47, by Shrewsbury Sch.	Welsrijp, Friesland, Holland. 2.4.47.
WL.277	Charlbury (Oxon.), 30.10.39, by Oxford Orn. Soc.	Where ringed, 22.6.47.
R.5258	Beddington (Surrey), 25.12.38, by London N.H.S.	Noginsk, Moscow, 20.6.41.
TW.675	Iwerne Minster (Dorset), 28.1.47, by Clayesmore Sch.	Harpford (Devon), 5.3.47. [51 m. WSW.].
TW.768	Ditto 16.2.47.	Knesselare, East Flanders, —.3.47.
X.5301	Cardiff (Glam.), 4.3.47, by Bruce Campbell.	Bishopston (Glam.), 6.3.47. [40 m. W].
TX.868	Douglas, I.O.M., 16.2.47, by Cowin, Crellin & Ladds.	Thearne (E. Yorks), 12.6.47.
SL.153	Tallaght (Dublin), 31.1.47, by F. W. Fox.	Schwerin (Mecklenburg), Germany, 17.6.47.

House-Sparrow (*Passer d. domesticus*).

CV.930	Brynsciencyn (Anglesey), 20.6.46, young, by O. A. Dod.	Llandudno (Caerns.), —.3.47. [21 m. NE.].

Meadow-Pipit (*Anthus pratensis*).

TW.368	Skomer (Pem.), 9.8.46, juv., by Skokholm Bird Obs.	Moliets (Landes), France, 15.10.46.

Pied Wagtail (*Motacilla alba yarrellii*).

RINGED AS YOUNG.

No.	*Ringed.*	*Recovered.*
XJ.635	Edenhall (Cumb.), 12.6.46, by R. H. Brown.	Southsea (Hants.), 10.2.47. [275 m. SSE.].
TK.549	Skokholm Bird Obs. (Pem.), 2.8.46.	Skomer (Pem.), 24.8.46.

Whitethroat (*Sylvia c. communis*).

CH.607	Mortimer (Berks.), 13.7.44, Ad. by Oxford Orn. Soc.	Where ringed, 21.6.46.

Song-Thrush (*Turdus e. ericetorum*).

RINGED AS YOUNG.

OA.116	Torrance (Stirlings), 9.5.43, by J. Bartholomew.	Linlithgow, 3.3.47. [26 m. E.].
SF.331	Church Stretton (Salop), 22.6.44, by W. A. Cadman	Shrewsbury (Salop.), 19.5.46. [10 m. N.].
SF.877	Oundle (Northants), 4.6.44, by Oundle Sch.	Kempston (Beds.), 20.3.47. [27 m. S.].
SM.384	Crawley (Sussex), 9.6.46, by J. Ferguson Lees.	Rustington (Sussex), 12.2.47. [24 m. SSW.].

RINGED AS FULL-GROWN.

SJ.181	Huddersfield (Yorks.), 1.3.46, by A. N. Sykes.	Rathangan (Kildare), 9.4.47.
SL.428	Spurn Bird Obs. (Yorks.), 5.10.46.	South Killingholme (Lincs.), 18.2.47. [18 m. W.].
TX.140	Cullompton (Devon), 11.9.41, by A. Darlington.	Starcross (Devon), 18.2.47. [19 m. SSW.].

Blackbird (*Turdus m. merula*).

RINGED AS FULL-GROWN.

XB.541	Spurn Bird Obs. (Yorks), 17.11.45.	East Ravendale (Lincs.), 19.2.47. [16 m. SW.].
ZP.492	Skokholm Bird Obs. (Pem.), 30.3.47.	Cheadle (Staffs.), 25.4.47. [165 m. NE.].

Wheatear (*Œnanthe œ. œnanthe*).

SL.518	Skomer (Pem.), 18.6.46, juv. by Skokholm Bird Obs.	San Sebastian (Guipuzcoa), Spain, 18.8.46.

Robin (*Erithacus rubecula*).

ED.768	Isle of May Bird Obs., 1.10.46, ad.	Skien, S. Norway, 18.4.47.
XE.427	Skomer (Pem.), 19.8.46, ad., by Skokholm Bird Obs.	Dale (Pem.), 18.12.46.

Swallow (*Hirundo r. rustica*).

RINGED AS YOUNG.

ES.105	Hoghton (Lancs.), 3.7.42, by London N.H.S.	Where ringed, 29.4.47.

RINGED AS FULL-GROWN.

CW.333	Tallaght (Dublin), 26.6.46, by F. W. Fox.	Where ringed, 25.6.47.
CW.334	Ditto 26.6.46.	Ditto 25.6.47.

(These two birds were mated when ringed, but when recovered each had a different mate.)

No.	*Ringed.*	*Recovered.*
	Sand-Martin (*Riparia r. riparia*).	
	RINGED AS YOUNG.	
CS.281	Rothley (Leics.), 21.7.45, by Storer and Jolley.	Where ringed, 3.8.46 (breeding).
	RINGED AS FULL-GROWN.	
CR.386	Rothley (Leics.), 2.7.46, by Storer and Jolley, transported to Nottingham. [17 m. N.].	Where ringed, 6.7.46.
CR.388	Ditto 2.7.46.	Ditto 3.7.46.
	Long-eared Owl (*Asio o. otus*).	
AD.2442	Tallaght (Dublin), 28.5.46, young, by F. W. Fox.	Aylwardstown (Kilkenny), 7.5.47. [70 m. SSW.].
	Tawny Owl (*Strix aluco sylvatica*).	
404717	Askham (Westmorland), 2.6.46, young, by R. H. Brown.	Ulverston (Lancs.), 22.2.47. [32 m. SSW.].
	Barn-Owl (*Tyto a. alba*).	
AD.3029	Welton (Lincs.), 25.6.46, young, by Ash and Ridley.	Owston Ferry (Lincs.), 15.9.46. [18 m. NW.].
	Peregrine Falcon (*Falco p. peregrinus*).	
404716	Cumberland, 21.5.46, young, by R. H. Brown.	Loch Finlas (Ayrshire), 9.12.46.
	Merlin (*Falco columbarius æsalon*).	
RW.2480	Cilcain (Flints.), 29.6.46, young, by C. M. Swaine.	Bickerstaffe (Lancs.), —.4.47. [30 m. NNE.].
	Kestrel (*Falco t. tinnunculus*).	
327087	Alwinton (Northumb), 27.5.45 young, by Ash and Ridley.	Crondall (Surrey), 22.3.47. [285 m. SSE.].
326428	Twyford (Derby), 7.6.44, young, by Repton Sch.	Waxham (Norfolk), 1946 or 1947. [130 m. E.].
	Common Buzzard (*Buteo b. buteo*).	
AC.9816	Isle of Bute, 16.6.46, young, by Lord D. Stuart.	Durisdeer (Dumfries), 21.4.47. [65 m. SSE.].
	Common Heron (*Ardea c. cinerea*).	
	RINGED AS YOUNG.	
503147	Munlochy (E. Ross), 3.5.46, by Rev. J. Lees.	Shuna I., Appin (Argyll), 4.2.47. [80 m. SW.].
112262	Kilbarchan (Renfrew.), 25.6.33, by F. J. Ramsay.	Irvine (Ayrshire), —.2.47. [18 m. SSW.].
503225	Shrewsbury (Salop), 19.5.46, by Shrewsbury Sch.	Leebotwood (Salop.), 27.12.46. [11 m. S.].
503360	Bromham (Beds.), 12.5.46, by Bedford Sch.	Sandon (Essex), —.12.46. [56 m. SE.].
502785	Tollesbury (Essex), 2.5.45, by J. M. Simister.	Almeley (Herefords.), —.2.47. [165 m. W.].
504841	High Halstow (Kent), 24.5.47, by D. Goodwin.	Isigny (Calvados), France, 8.7.47.

No.	*Ringed.*	*Recovered.*
500826	Dungeness (Kent), 18.6.39, by Brooker and Cawkell.	Small Dole (Sussex), spring 1947. [52 m. W.].
503245	Banwell (Somerset), 9.6.46, by R. H. Poulding.	Thorpe Mandeville (Northants), 7.1.47. [92 m. NE.].
501805	Strangford L. (Co. Down), 14.5.46, by V. H. Spry.	Glengormley (Antrim), 25.8.46. [20 m. NW.].
501807	Ringdufferin (Co. Down), 18.5.46, by V. H. Spry.	Upper Ballinderry (Antrim),—.2.47. [25 m. WNW.].

Mallard (*Anas p. platyrhyncha*).

RINGED AS FULL-GROWN.

401161	Leswalt (Wigtownshire), 24.2.39, by J. Law.	North Wootton (Norfolk), —.9.46. [265 m. SE.].

RINGS ISSUED TO WILDFOWL INQUIRY COMMITTEE.

925379	Abbotsbury (Dorset), 6.2.46.	Vestra Tunhem, Alvsborg, Sweden, 15.10.46.
925140	Abbotsbury (Dorset), 26.12.38.	Biesbosch, Zuid Holland, autumn, 1946.
*Or.*4473	Pembroke 25.1.46.	S. Nicolas de Redan (Loire Inf.), France, 4.8.46.

Teal (*Anas c. crecca*).

RINGED AS FULL-GROWN.

RINGS ISSUED TO WILDFOWL INQUIRY COMMITTEE.

903515	Pembroke	21.1.46.	Forfar, 13.7.47.
904008	Ditto	8.12.46.	Downpatrick (Down), 22.2.47.
904282	Ditto	18.12.46.	Macken, Enniskillen (Fermanagh), —.2.47.
902886	Ditto	8.12.45.	Mount Louise (Monaghan), 14.11.46.
903305	Ditto	8.1.46.	Lough Ramor (Cavan), 3.11.46.
903982	Ditto	7.12.46.	Lough Sheelin (Cavan), 15.2.47.
902707	Ditto	10.11.45.	Carlingford (Louth), 29.1.47.
903067	Ditto	19.12.45.	Castlebellingham (Louth), 18.2.47.
903908	Ditto	2.12.46.	Killashee (Longford), 5.3.47.
903303	Ditto	8.1.46.	Granard (Longford), 25.2.47.
902994	Ditto	17.12.45.	Street (Westmeath), 20.2.47.
903771	Ditto	19.11.46.	Ballyglass (Mayo), 19.2.47.
903971	Ditto	5.12.46.	Ballinasloe (Galway), 3.3.47.
902905	Ditto	9.12.45.	Eyrecourt (Galway), 20.12.46.
902885	Ditto	8.12.45.	Thurles (Tipperary), 15.2.47.
903499	Ditto	21.1.46.	Borrisokane (Tipperary), 8.12.46.
902837	Ditto	28.11.45.	Dundrum (Tipperary), 28.2.47.
904357	Ditto	20.12.46.	Piltown (Kilkenny), 2.2.47.
902884	Ditto	8.12.45.	Ballyneale (Kilkenny), 31.1.47.
903923	Ditto	4.12.46.	Ballyduff (Waterford), 14.1.47.
904085	Ditto	13.12.46.	Cappoquin (Waterford), 15.2.47.
902945	Ditto	12.12.45.	Novgorod, W. Russia, 10.4.46.
903165	Ditto	27.12.45.	Gruzino, W. Russia, 20.8.46.
903069	Ditto	19.12.45.	Bereska, Pskov, W. Russia, 3.9.46.
902771	Ditto	23.11.45.	Dniepropetrovsk, Ukraine, 3.11.46.
902852	Ditto	28.11.45.	Vöra, W. Finland, 5.5.47. (63° 10′N 22° 10′ E.).
903324	Ditto	9.1.46.	Punkalaidun, S.W. Finland,26.8.46.
903562	Ditto	24.1.46.	Karis, S. Finland, 20.8.46. (60° 05′, N. 23° 50′E.).
902555	Abbotsbury (Dorset)	23.1.46.	Korvanen, N. Finland (68°N. 27° 55′E.), 10.5.47.

No.	*Ringed.*		*Recovered.*
902851	Pembroke	28.11.45.	Troki (=Trakai), S.E. Lithuania, 11.8.46.
902768	Ditto	23.11.45.	Dybsö (Sjaelland), Denmark,—9.46.
901143	Ditto	22.10.38.	Holbaek Fjd. (Sjaelland), Denmark, 31.8.39.
903294	Ditto	8.1.46.	Fodslett, (Langeland), Denmark. 24.11.46.
903319	Ditto	9.1.46.	Uetersen (Holstein), Germany, —.9.46.
903611	Ditto	30.1.46.	Oosterwolde (Friesland), Holland, —.8.46.
903420	Ditto	15.1.46.	Terschelling, W. Frisian Is.,—.9.46.
902796	Ditto	26.11.45.	Nieuwkoop, Zuid Holland, 15.1.47.
901147	Ditto	22.10.38.	Biesbosch, Zuid Holland, autumn, 1946.
900783	Ditto	2.1.40.	Ditto autumn, 1946.
902831	Ditto	26.11.45.	Dixmude, W. Flanders, 17.10.46.
903785	Ditto	21.11.46.	Dunkirk (Nord), France, 28.3.47.
904366	Ditto	20.12.46.	Palluel Marsh (Pas de Calais), France, 9.3.47.
904295	Ditto	19.12.46.	Long (Somme), France, 20.3.47.
903969	Ditto	5.12.46.	St. Ouen's Pond, Jersey, 24.1.47.
903416	Ditto	15.1.46.	Le Conquet (Finistère), France, 25.1.47.
903784	Ditto	21.11.46.	Pipriac (Ille et Vilaine), France, 26.1.47.
903000	Ditto	17.12.45.	Saubusse (Landes), France,—.12.46.
902932	Ditto	11.12.45.	Grau du Roi (Gard), France, 28.1.47
902560	Abbotsbury (Dorset)	23.1.46.	Bayonne (B.P.), France, 25.1.47.

Tufted Duck (*Aythya fuligula*).

RINGED AS FULL-GROWN.

AD.3485	St. James' Park, London, 24.9.46, by D. Goodwin.		Pitsea (Essex), 13.12.46. [30 m. E.].
328580	Ditto by London, N.H.S.	24.10.46,	Rainham (Kent), 13.12.46. [35 m. ESE.].
325931	Ditto	30.1.45.	Komi Region (=Yarensk), Vologda Govt., Russia, 3.6.46).

Cormorant (*Phalacrocorax c. carbo*).

RINGED AS YOUNG.

122454	Big Scar (Wigtown), 5.7.39, by Lord D. Stuart.		Fleetwood (Lancs), 23.3.47. [85 m. SE.].
122479	Ditto	5.7.39.	Armathwaite (Cumb.), 24.2.47. [80 m. E.].
122452	Ditto	5.7.39.	Rockcliffe (Cumb.), 18.9.46. [70 m. E.].
122451	Ditto	5.7.39.	Aberdeen, 20.2.47.
126004	Farne Is. (Northumb.), 19.7.39, by R. Carrick.		Nantes (Loire Inf.), France, 6.2.47.
121735	Maughold Head, I. O. M., 1.8.46, by Cowin, Crellin, Ladds and Williamson.		Bridgwater (Som.), 15.9.46.
121732	Ditto	1.8.46.	Langueux (Côtes-du-Nord), France, 17.9.46.
125917	Skomer (Pem.), 6.7.46, by Skokholm Bird Obs.		Portsmouth (Hants.), 12.2.47. [190 m. ESE.].

No.	*Ringed.*	*Recovered.*
501796	Sheep I. (Antrim), 13.5.46, by V. H. Spry.	Killyleagh (Down), 12.9.46. [70 m. SSE.].
501795	Ditto 13.5.46.	Ardglass (Down), —.9.46. [80 m. SSE.].
501798	Ditto 13.5.46.	Passage East (Waterford), 30.10.46. [208 m. S.].
501799	Ditto 13.5.46.	Treillières (Loire Inf.), France, 8.12.46.
126243	Lambay (Dublin), 13.6.39, by Skokholm Bird Obs.	L. Neagh (Antrim), —.2.47.

Shag (*Phalacrocorax a. aristotelis*).

126477	Lambay (Dublin), 13.6.39, young, by Skokholm Bird Obs.	Strangford Lough (Down), 5.10.46. [65 m. N.].

Gannet (*Sula bassana*).

RINGED AS YOUNG.

500473	Bass Rock, 6.8.46, by Malcolm Stewart.	Off Etaples (Pas de Calais), France, —.10.46.
120448	Ailsa Craig, 31.7.37, by Rugby Sch.	Where ringed, 10.7.47.
504198	Grassholm, 8.7.46, by Skokholm Bird Obs.	l'Aiguillon (Vendée), France, 8.9.46.
504183	Ditto 8.7.46.	Off Biscarrosse (Landes), France, 25.9.46.
504128	Ditto 8.7.46.	Biarritz (B-P), France, 9.10.46.
503838	Ditto 8.7.46.	St. Jean de Luz (B-P), France, 15.9.46.
503710	Ditto 11.7.46.	Ditto 16.9.46.
503708	Ditto 11.7.46.	San Vicente de la Barquera (Santander), Spain, 22.9.46.
504070	Ditto 8.7.46.	Off Cape Estaca de Vares (Coruña), Spain, 21.9.46.

RINGED AS FULL-GROWN.

504747	Isle of May Bird Obs., 4.9.46.	I. of Schouwen (Zeeland), Holland, 26.9.46.
125896	Grassholm, 2.5.46, by Skokholm Bird Obs.	Port Erin (I.O.M.), 29.4.47.
125879	Ditto 1.7.45.	Ringstead Bay (Dorset), 20.1.47.
118259	Ditto 6.6.40.	Off Eddystone Lighthouse. (S. Devon), 30.1.47. [120 m. SE.].
126026	Ditto 16.5.46.	Portwrinkle (Cornwall), 23.3.47. [105 m. SSE.].

Manx Shearwater (*Puffinus p. puffinus*).

RINGED AS FULL-GROWN.

AT.6096	Skokholm Bird Obs., 26.8.46.	Llandovery (Carms.), 3.9.46.
3 birds	Ditto, summer, 1946.	Coast of Basses Pyrenees, April, 1947.
2 birds	Skomer, summer, 1946, by Skokholm Bird Obs.	Ditto, April & May, 1947.
3 birds	Skokholm Bird Obs., summer, 1946.	Coasts of Vizcaya, Spain, March and April, 1047.
4 birds	Skomer, summer, 1946, by Skokholm Bird Obs.	Ditto April, 1947.
AT.199 [300343]	Skokholm Bird Obs., 9.8.37.	Ditto 2.4.47.

Fulmar Petrel (*Fulmarus g. glacialis*).

No.	*Ringed.*	*Recovered.*
328759	Ramsey (I.O.M.), 26.8.46, young, by Cowin, Crellin, Ladds and Williamson.	Saxilby (Lincs.), 15.9.46.

Wood-Pigeon (*Columba p. palumbus*).

RW.2023	Insch (Aberdeen), 5.6.46, young, for Wood-Pigeon Inq.	Culter (Aberdeen), 8.3.47. [22 m. SE.].
315961	Harewood (Yorks), 23.7.45, young, by M. Hardy.	Ulceby (Lincs.), 22.2.47. [52 m. ESE.].

Oystercatcher (*Hæmatopus ostralegus occidentalis*).

RW.2199	Carnousie (Banff.), 30.6.46, young, by Adam Watson.	Leven Estuary (N. Lancs.), 22.1.47. [230 m. S.].

Lapwing (*Vanellus vanellus*).

RINGED AS YOUNG.

222240	Southwaite (Cumb.), 17.5.39, by Moon and Cooper.	Castellon (Valencia), Spain, 27.4.40.
233792	Wolsingham (Durham), 6.7.46, by R. Martinson.	Co. Kildare, —.11.46.
233141	Brigsteer (Westmorland), 29.5.44, by R. M. Band.	Ardfert (Kerry), —.2.47.
235883	Ditto 8.6.46.	St. Christoly de Médoc (Gironde), France 3.2.47.
223165	Sedbergh (Yorks), 12.7.42, by Sedbergh Sch.	St. Jean de Luz (B-P), France, 1.2.47.
235418	Bolton-by-Bowland (W. Yorks), 24.6.45, by C. Oakes.	Ballingarry (Limerick), 1.12.46.
208255	Great Mytton (W. Yorks), 24.6.43, by C. Oakes.	Lanesborough (Longford), 23.1.47.
223655	Burnley (Lancs.), 29.5.45, by J. J. Boon.	Pauillac (Gironde), France, 3.2.47.
235660	Padiham (Lancs.), 28.6.45, by J. J. Boon.	Knottingley (Yorks.), 5.12.46. [46 m. ESE.].
223658	Whalley (Lancs.), 6.6.45, by J. J. Boon.	St. Ciers (Gironde), France, 17.2.47.
236227	Clitheroe (Lancs.), 26.5.46, by J. J. Boon.	Kildoney (Donegal), 8.2.47.
236978	Bride (I.O.M.), 5.7.46, by Cowan, Crellin, Ladds and Williamson.	Glin (Limerick), 1.3.47.
233522	Rue Point (I.O.M.), 6.5.45, by Cowan, Crellin, Ladds and Williamson.	Limerick, 2.1.47.
236846	Newton, Wirral (Cheshire), 15.5.46, by D. Shackleton.	San Sebastian (Guipuzcoa), Spain, 30.1.47.
221017	Sandbach (Cheshire), 21.6.46, by F. J. Brown.	Gijon (Asturias), Spain, 15.2.47.
226026	Canterbury (Kent), 24.5.44, by C. B. Wainwright.	Oyarzun (Guipuzcoa), Spain, 26.1.47.

Curlew (*Numenius a. arquata*).

RINGED AS YOUNG.

No.	*Ringed.*	*Recovered.*
322278	Haltcliffe, Wigton, (Cumb.), 4.7.43, by R. H. Brown.	Holywood (Down), 8.3.47.
325300	Cardewlees, Dalston, (Cumb.), 22.6.45, by R. H. Brown.	Cloghane (Kerry), 20.12.46.

Common Snipe (*Capella g. gallinago*).

RINGED AS YOUNG.

TB.269	Uldale (Cumb.), 6.6.43, by R. H. Brown.	Boherbue (Cork), 30.12.46.
SK.924	Sabden (Lancs.), 24.5.46, by J. J. Boon.	Muckross (Kerry), 2.1.47.

Woodcock (*Scolopax rusticola*).

224604	Canterbury (Kent), 3.3.46, ad., by St. Edmund's Sch.	Dawlish (Devon), 25.2.47.

Sandwich Tern (*Sterna s. sandvicensis*).

RW.1657	Ravenglass (Cumb.), 26.6.46, young, by S. Marchant.	Dakar, Senegal, 15.1.47.

Black-headed Gull (*Larus r. ridibundus*).

RINGED AS YOUNG.

RW.3951	Clifden (Galway), 12.6.46, by A. E. Billett	Menlough, Ballinasloe (Galway), 19.2.47. [60 m. E.].
RW.3949	Ditto 12.6.46.	Thurles (Tipperary), 15.12.46. [115 m. SE.].

RINGED AS FULL-GROWN.

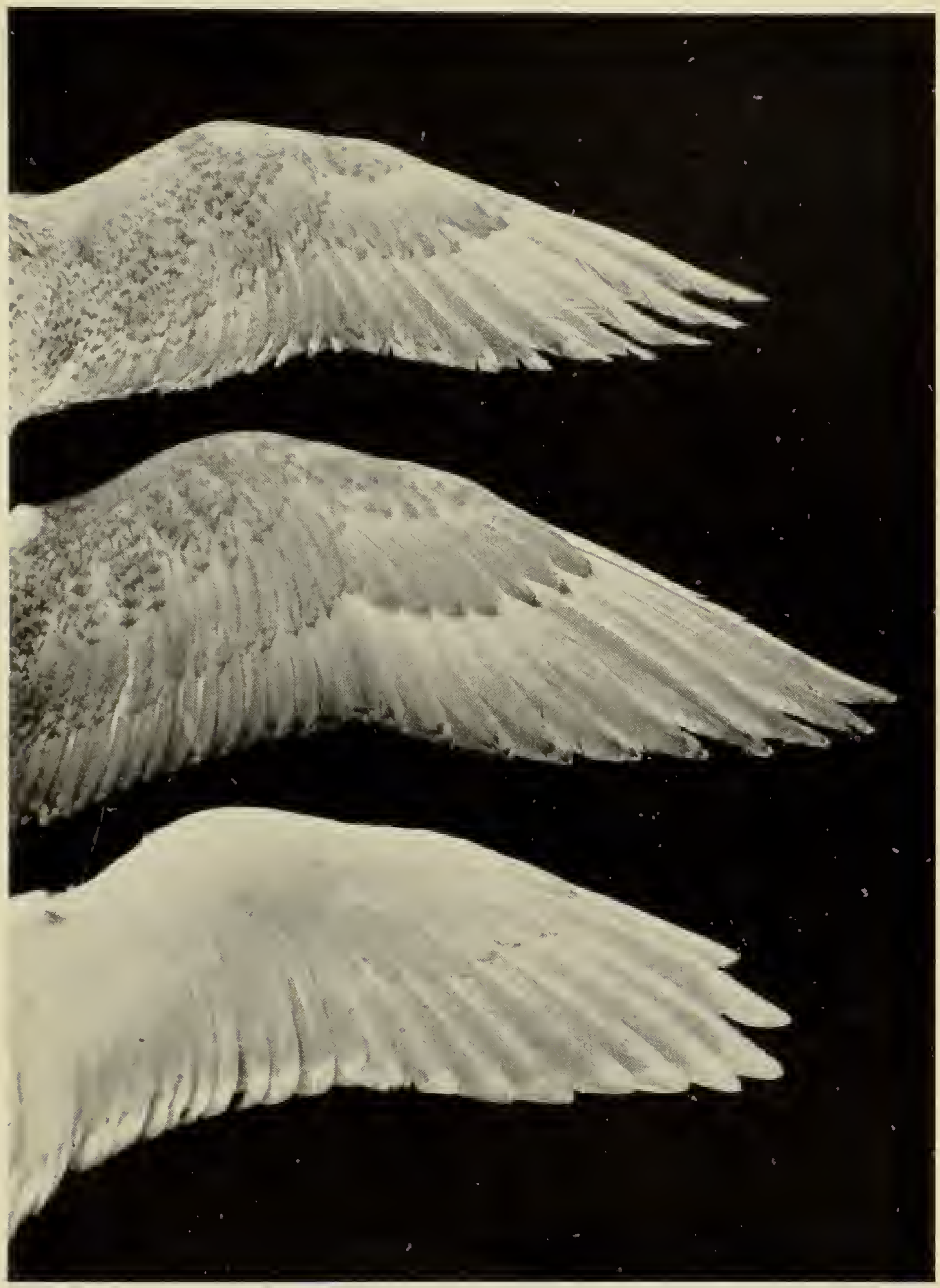
313964	Westminster, London, 13.1.40, by Lond. N.H.S.	Karreback (Sjaelland), Denmark, —.11.46.
323270	St. James' Park, London, 25.2.43, by London N.H.S.	Leeuwarden (Friesland), Holland, 26.10.46

Common Gull (*Larus c. canus*).

RINGED AS YOUNG.

327161	Lough Carra (Mayo), 2.6.45, by R. F. Ruttledge.	Rossnowlagh (Donegal), 2.3.47. [70 m. NNE.].
327573	Ditto 25.6.46.	Dromore West (Sligo), 7.3.47. [43 m. NNE.].
327513	Ditto 19.6.46.	Rathlee (Sligo), 3.3.47. [45 m. N.].
327550	Ditto 23.6.46.	Ballycastle (Mayo), 2.3.47. [43 m. N.].
325443	Ditto 23.6.43.	Roonah Point (Mayo), 3.3.47. [30 m. W.].
324123	Ditto 14.6.42.	Claddaghduff (Galway), 20.5.47. [40 m. WSW.].
325509	Ditto 29.5.44.	Kilronan, Aran Is. (Galway), 4.3.47. [45 m. SSW.].
327506	Ditto 19.6.46.	Kilshanny (Clare), 3.3.47. [50 m. S.].
327235	Lough Conn. (Mayo), 8.6.45, by R. F. Ruttledge.	Balla (Mayo), 5.2.47. [20 m. S.].

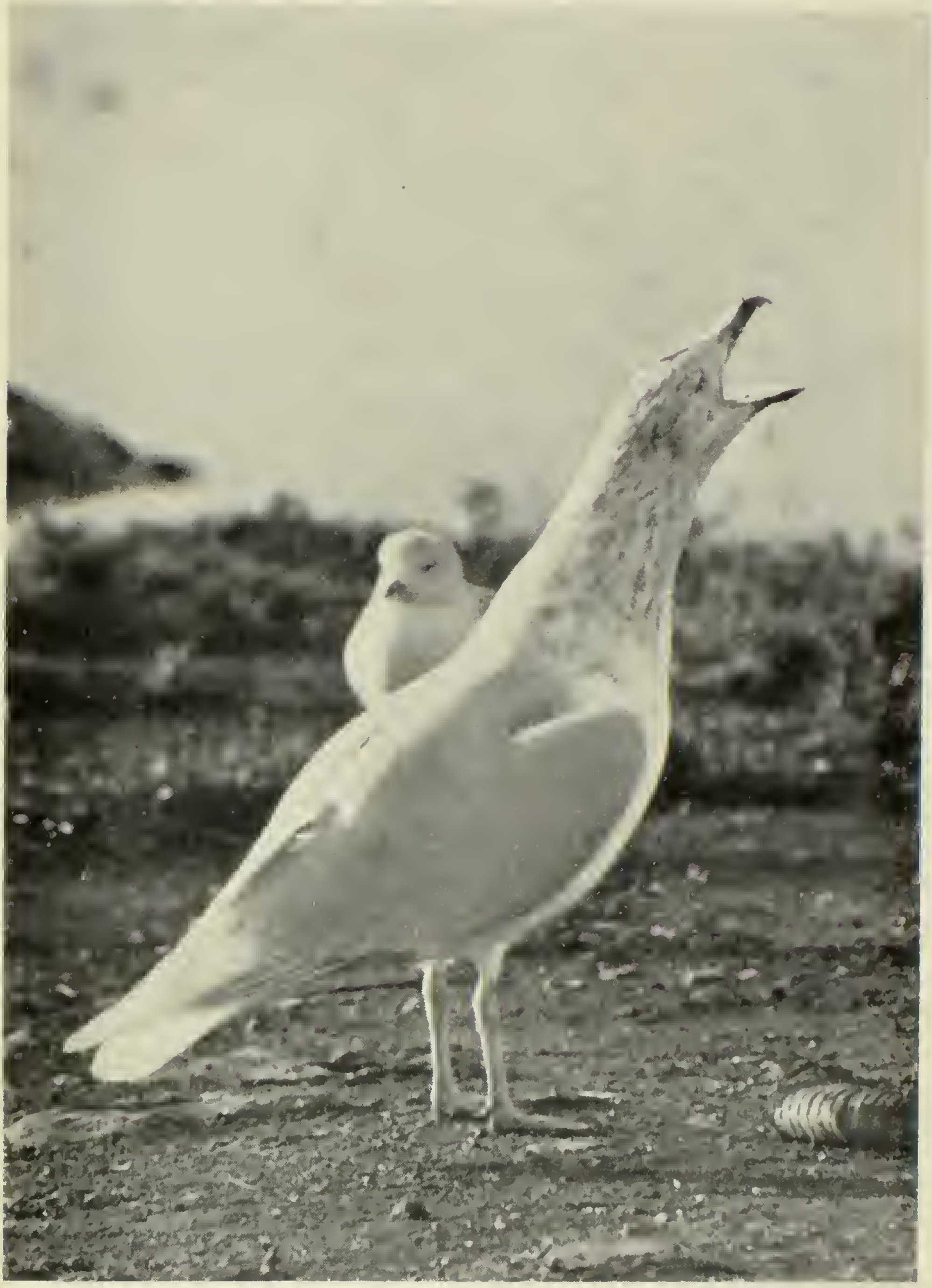
No.	*Ringed.*	*Recovered.*
	Herring-Gull (*Larus a. argentatus*).	
AD.3744	Skokholm Bird Obs. (Pem.), 4.7.46, young.	Wexford, 13.9.46.
	Lesser Black-backed Gull (*Larus fuscus grællsii*).	
	RINGED AS YOUNG.	
AB.55??	Walney I. (Lancs.), —.6.36, by late H. W. Robinson.	Hambleton, Estuary of Wyre (Lancs.), 27.6.47. [18 m. SE.].
AD.3871	Skokholm Bird Obs., 23.7.46.	Casablanca (W. Morocco), 30.11.46.
AD.2335	Steep Holm (Som.), 30.6.46, by A. E. Billett.	Portimão (Algarve), Portugal, 5.12.46.
	RINGED AS FULL-GROWN.	
AC.1921	Skomer, 29.4.46, by Skokholm Bird Obs.	Lisbon, 15.2.47.
	Great Black-backed Gull (*Larus marinus*).	
404345	Calf of Man, 20.7.41, young, by Ladds, Cowin and Williamson.	Dundalk (Louth), 6.4.47.
	Kittiwake (*Rissa t. tridactyla*).	
314249	Farne Is. (Northumb.), 1946, young, for late Mrs. Hodgkin.	Folkestone (Kent), 28.5.47.
	Great Skua (*Stercorarius s. skua*).	
AD.4360	Noss, Shetland, 3.7.46, young, by Richard Perry.	Off Nieuport, West Flanders, 6.1.47.
	Razorbill (*Alca torda britannica*).	
	RINGED AS YOUNG.	
AT.5136	Skomer (Pem.), 13.7.46, by Skokholm Bird Obs.	Strangford L. (Down), 28.9.46.
AT.5177	Ditto 18.7.46.	Arcachon (Gironde), France, 26.4.47.
AT.5521	Ditto 7.7.46.	Vigo (Pontevedra), Spain, 1.1.47.
AT.5186	Ditto 16.7.46.	Dellys (E. Algeria), 14.12.46.
AT.4588	Skokholm Bird Obs., (Pem.), 15.7.46.	Larmor-Baden (Morbihan), France, 3.1.47.
	RINGED AS FULL-GROWN.	
AT.5172	Skomer (Pem.), 18.7.46, by Skokholm Bird Obs.	Port Eynon Bay (Glam.), 4.4.47. [50 m. ESE.].
AT.5019	Ditto. 9.7.46.	Portland (Dorset), 23.4.47.
	Southern Guillemot (*Uria aalge albionis*).	
AT.5115	Skomer (Pemb.), 15.7.46, young, by Skokholm Bird Obs.	Porthtowan (Cornwall), 2.1.47. [95 m. S.].
AT.4685	Skokholm Bird Obs. (Pem.), 21.7.46, young.	Les Sables d'Olonne (Vendée), France, 4.2.47.
	Puffin (*Fratercula arctica grabæ*).	
AT.4564	Skokholm Bird Obs. (Pem.), 14.7.46, ad.	Zennor (Cornwall), 2.5.47. [105 m. S.].



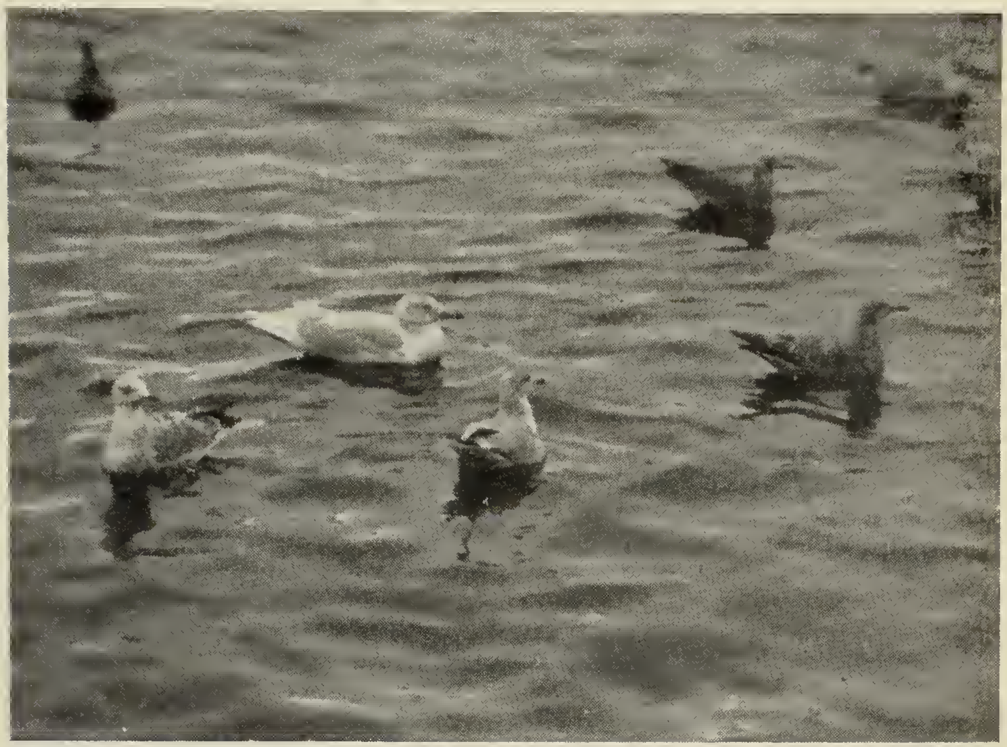
WINGS OF ICELAND AND GLAUCOUS GULLS.

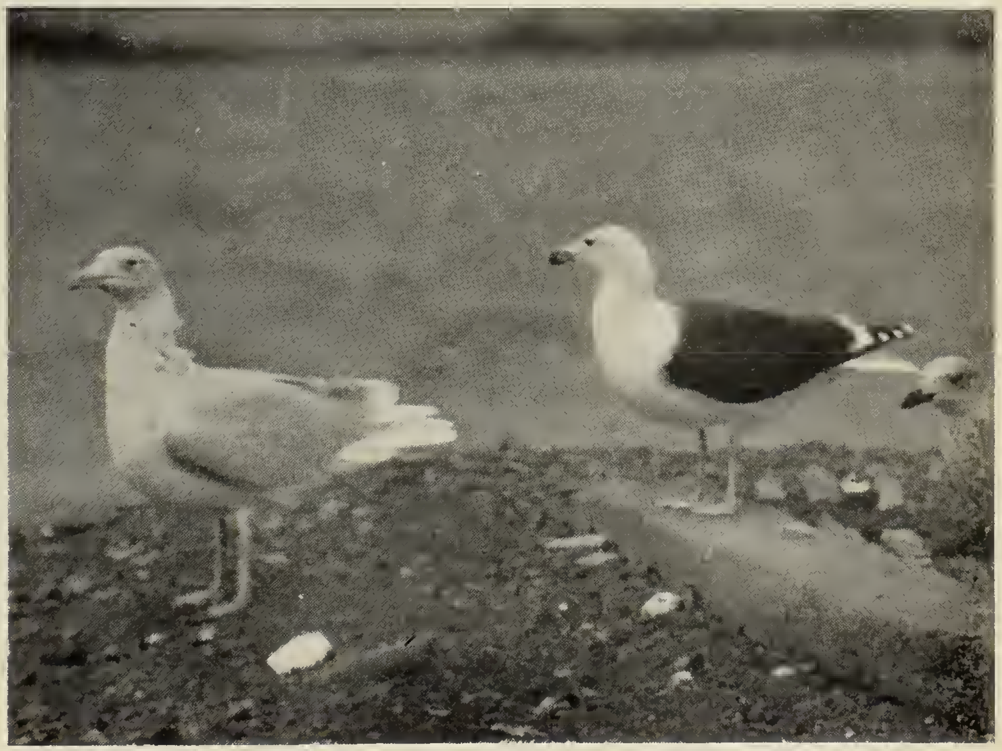
1. ICELAND GULL, FIRST WINTER, JANUARY 17TH, 1947.
2. GLAUCOUS GULL, FIRST WINTER, DECEMBER 29TH, 1946.
3. GLAUCOUS GULL, ADULT (PRIMARIES NOT FULLY GROWN), DECEMBER 18TH, 1946.

(*Photographed by* W. Kay).



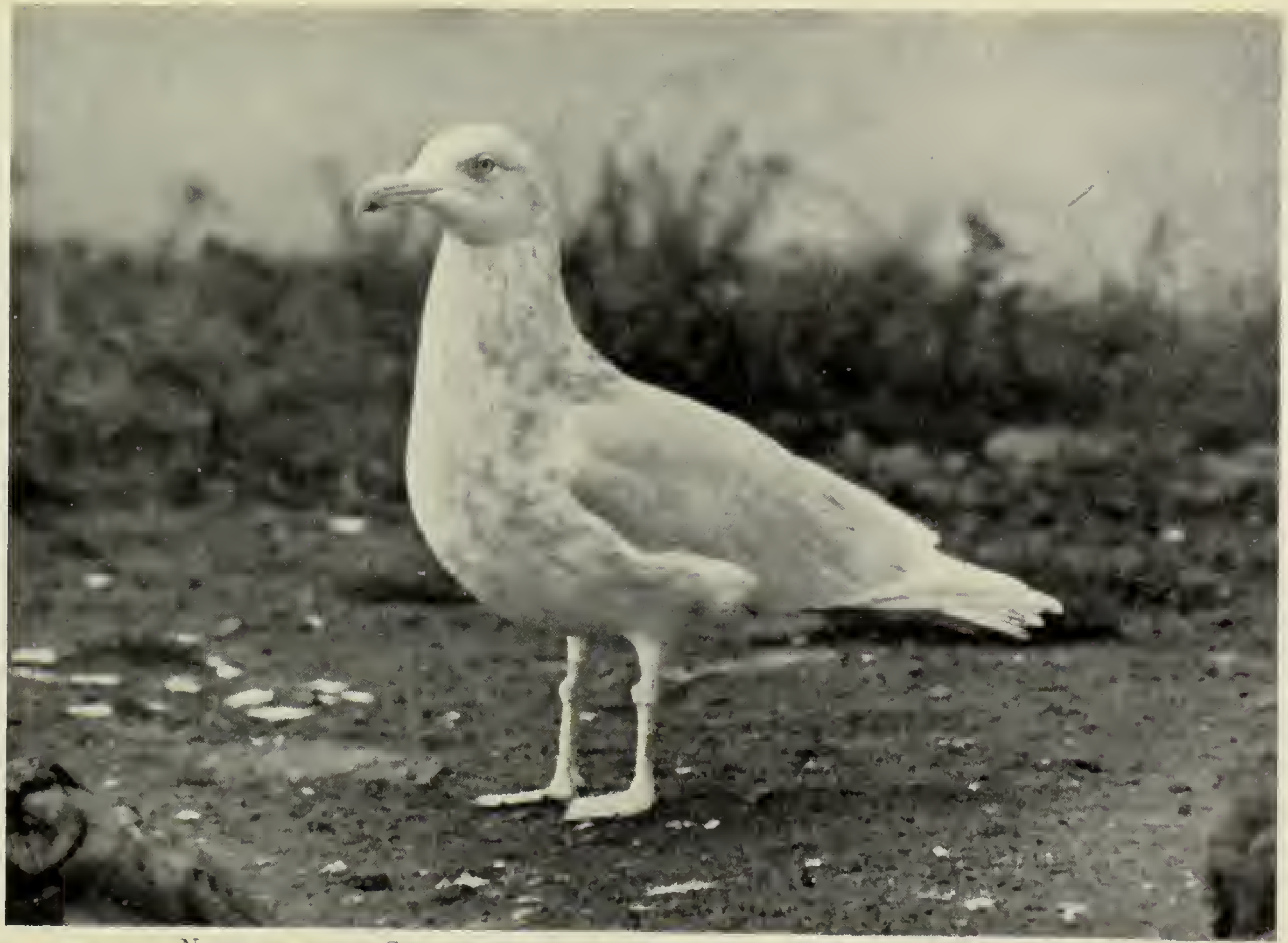
ADULT GLAUCOUS GULL, LERWICK, SHETLAND, DECEMBER 15TH, 1946.
(*Photographed by* W. Kay).



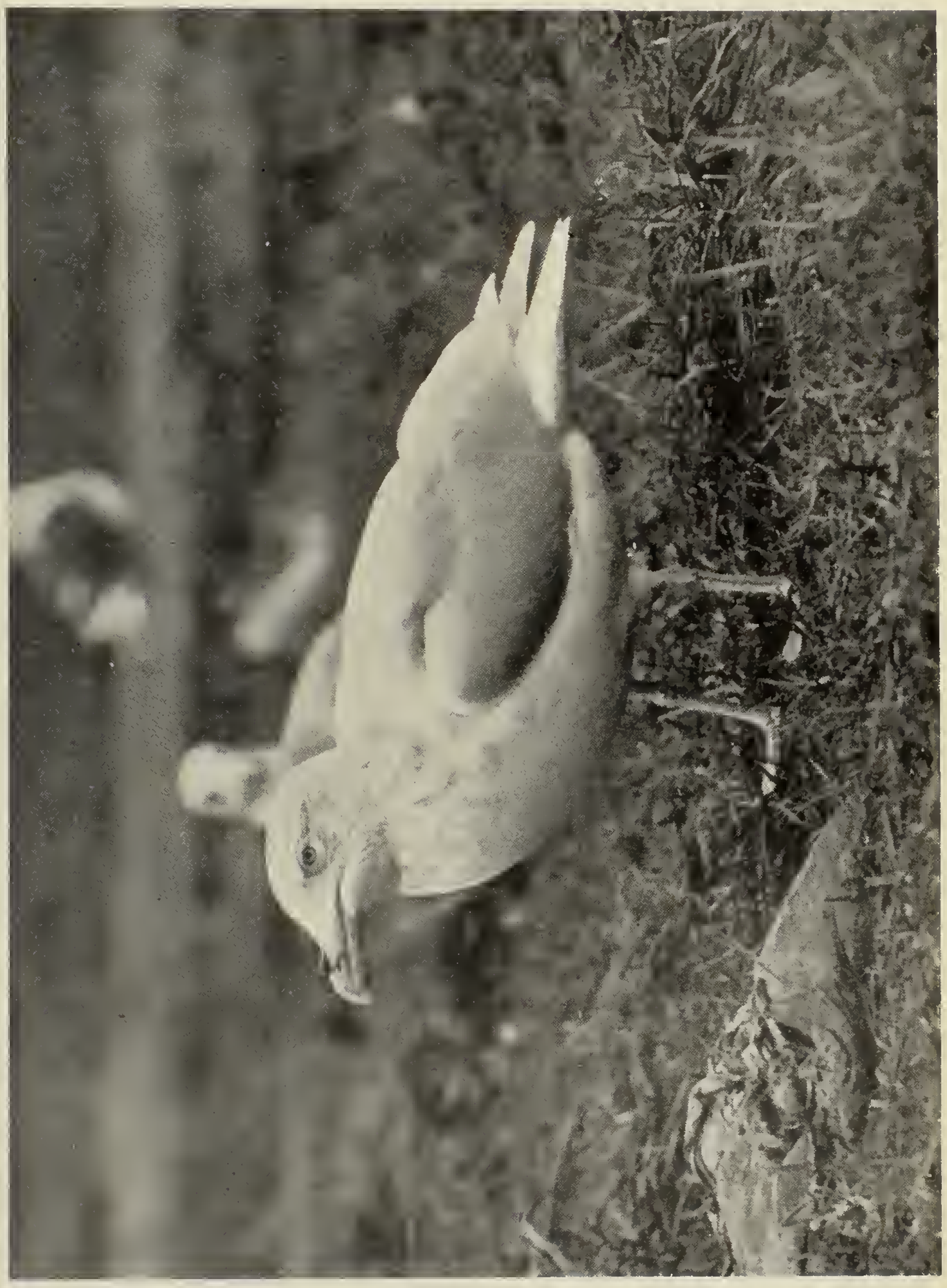


UPPER.—ADULT GLAUCOUS GULL WITH HERRING-GULLS, SHETLAND.
(*Photographed by* J. D. Rattar).

LOWER.—ADULT GLAUCOUS GULL COMPARED WITH GREAT BLACK-BACKED GULL, LERWICK, SHETLAND, NOVEMBER 8TH, 1946.
(*Photographed by* W. Kay).

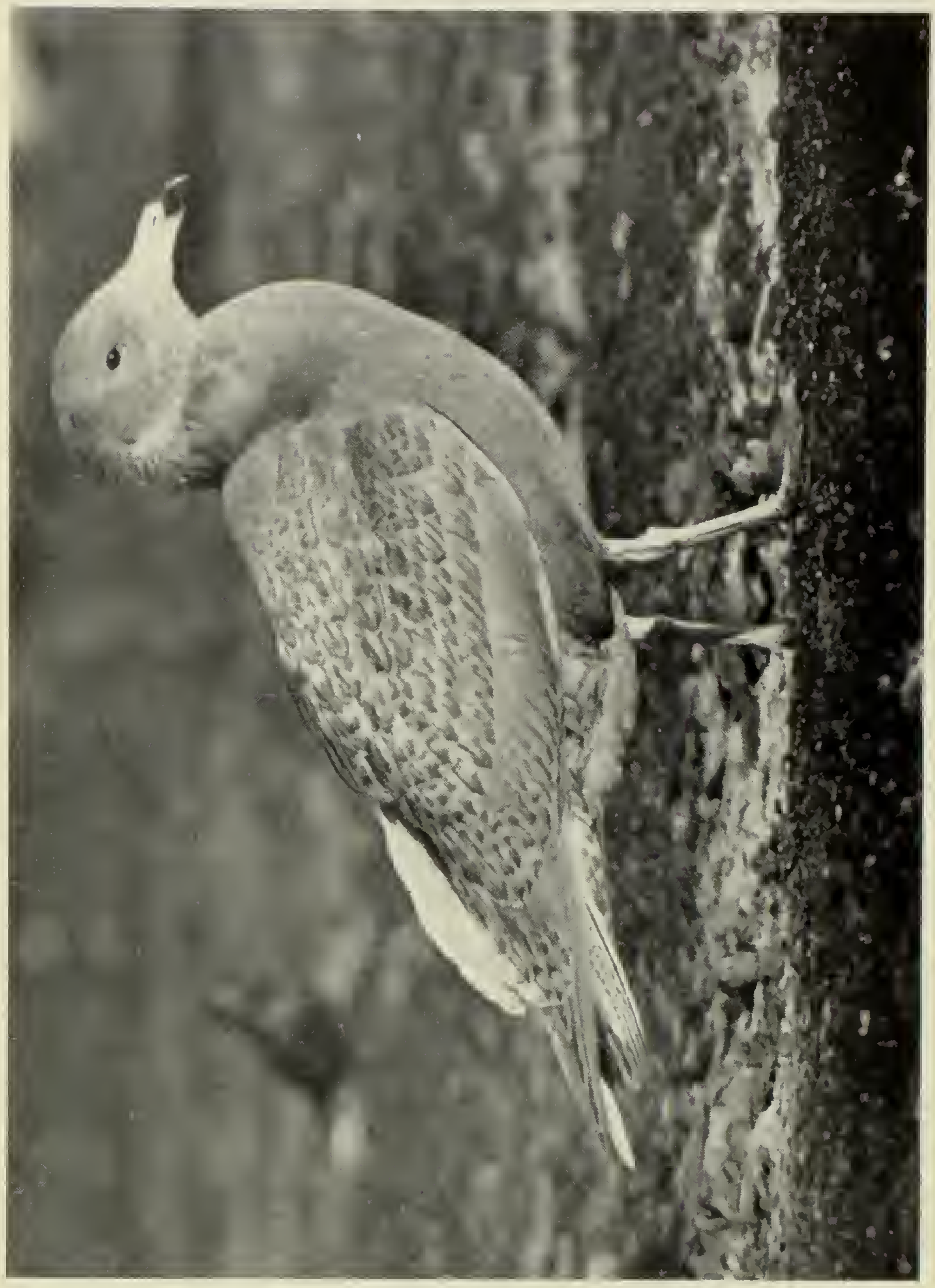


NEARLY ADULT GLAUCOUS GULL; PROBABLY FOURTH WINTER. LERWICK, SHETLAND, DECEMBER 15TH, 1946.

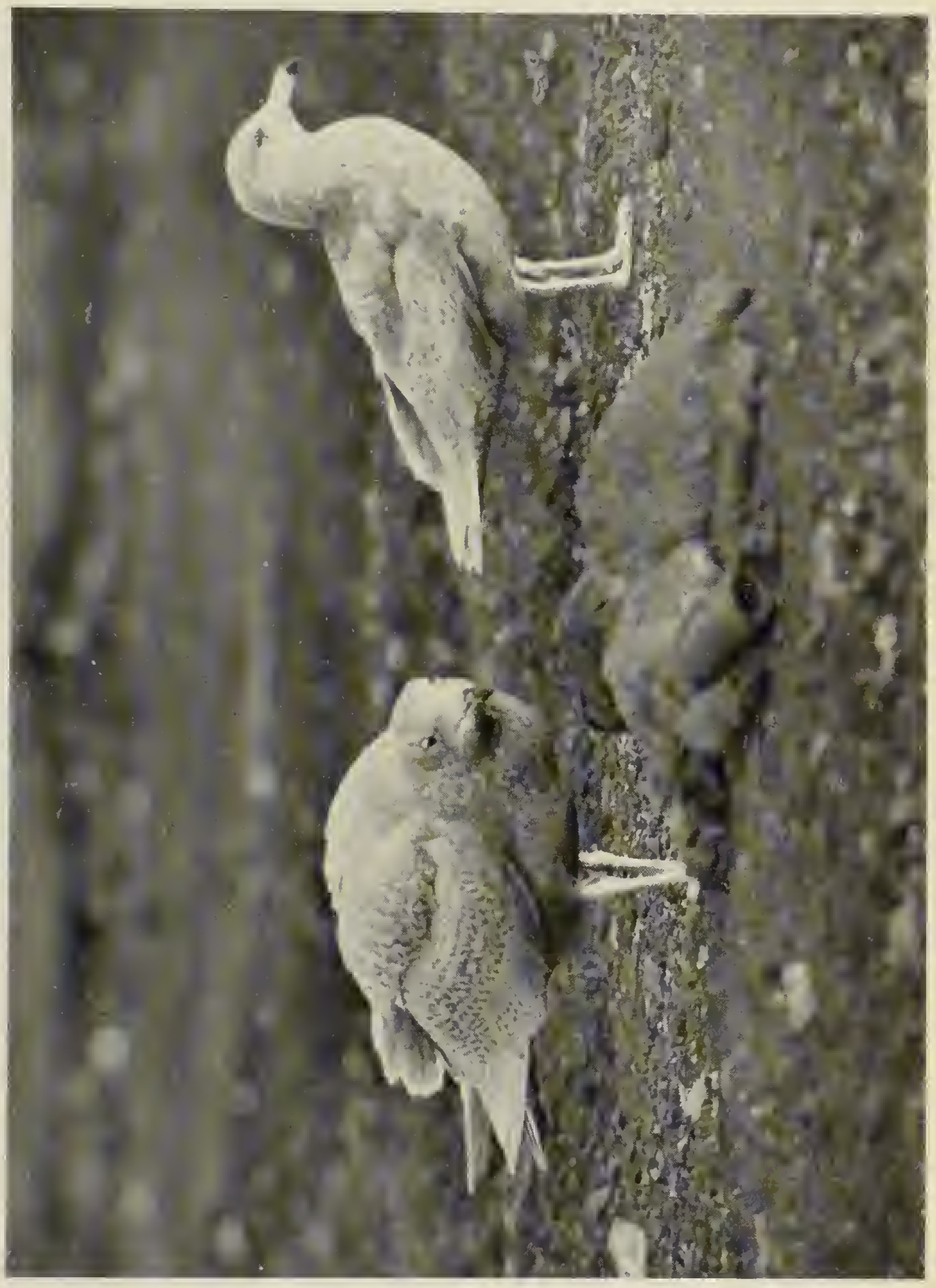


Adult Glaucous Gull, Lerwick, Shetland, November 20th, 1946.

(*Photographed by* W. Kay).

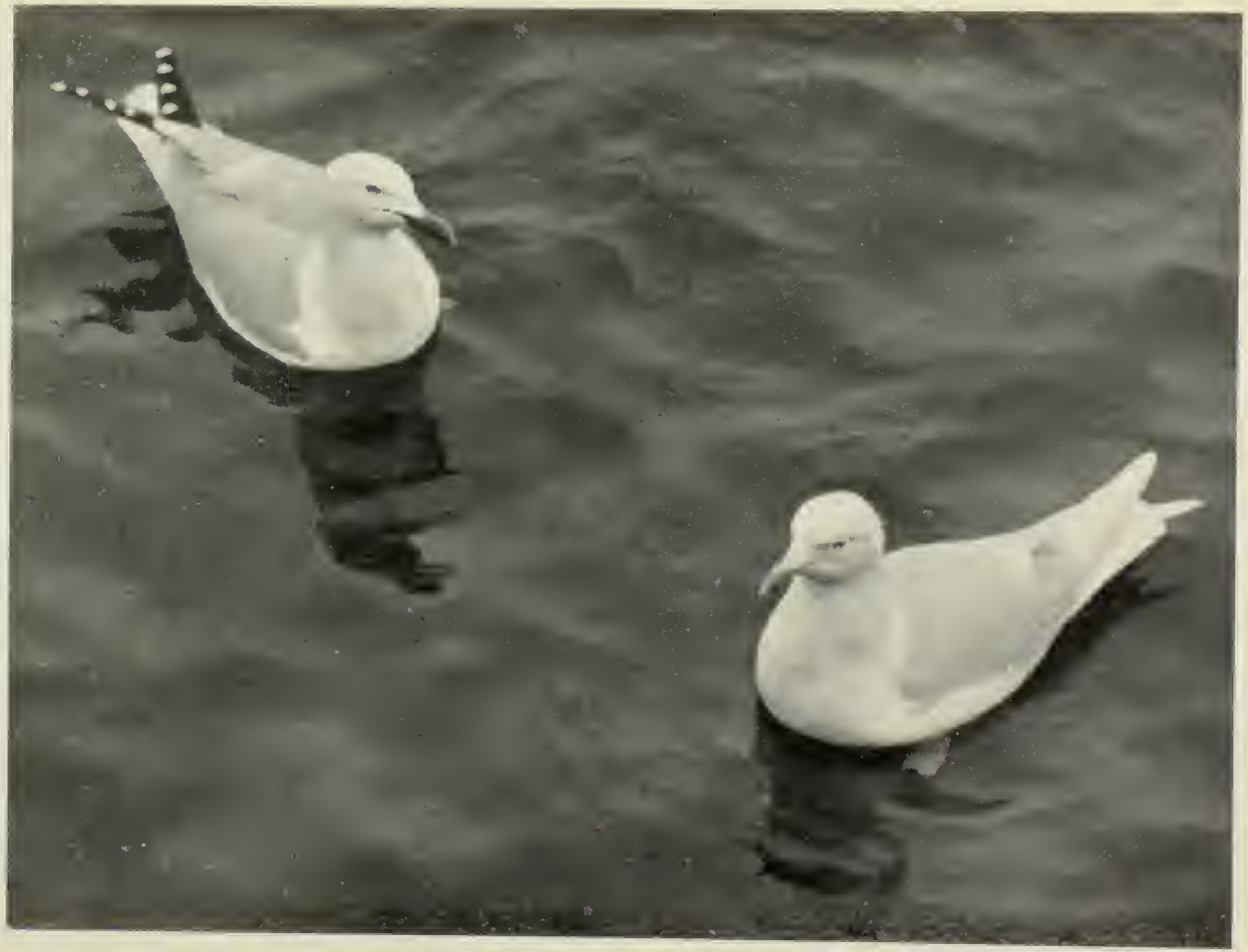


First winter Glaucous Gull, Lerwick, Shetland.
Note wings projecting well beyond tail.



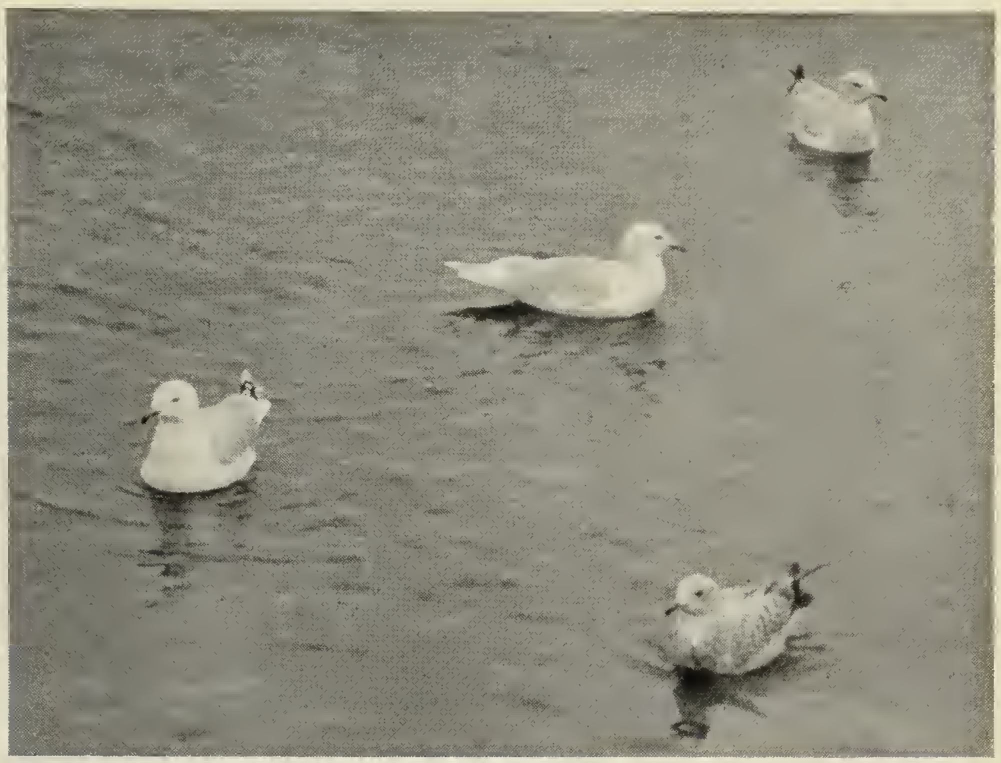
FIRST WINTER GLAUCOUS GULLS, LERWICK, SHETLAND.

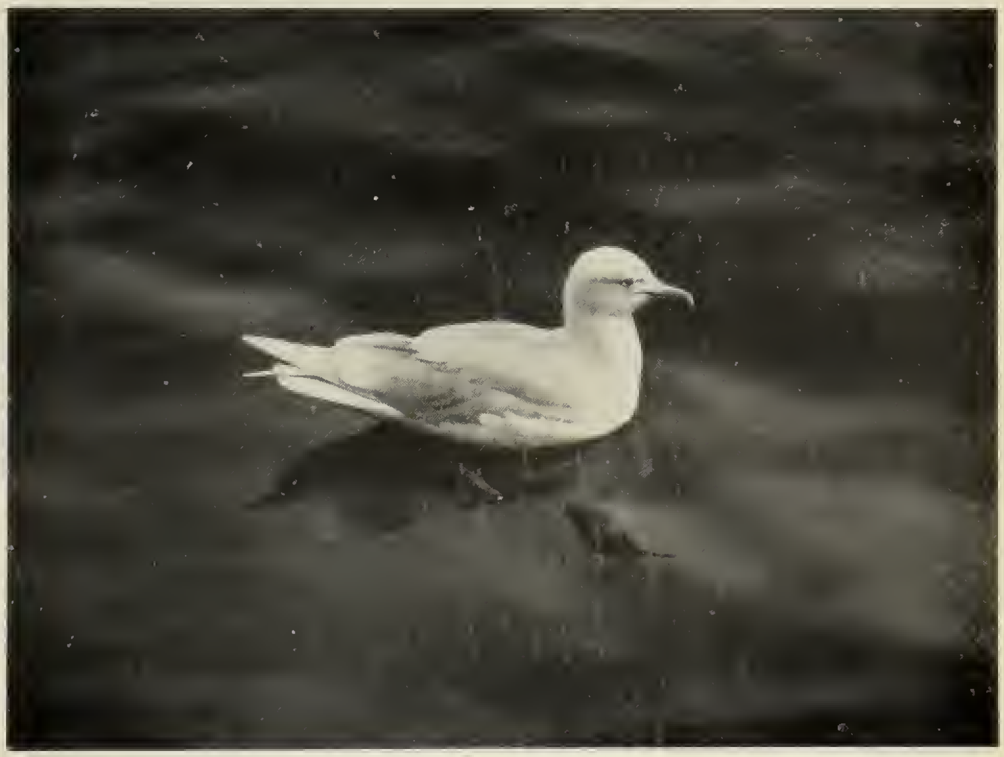
(*Photographed by* John Peterson).



SMALL ADULT GLAUCOUS GULL WITH ADULT HERRING-GULL, LERWICK, SHETLAND.

[illegible]





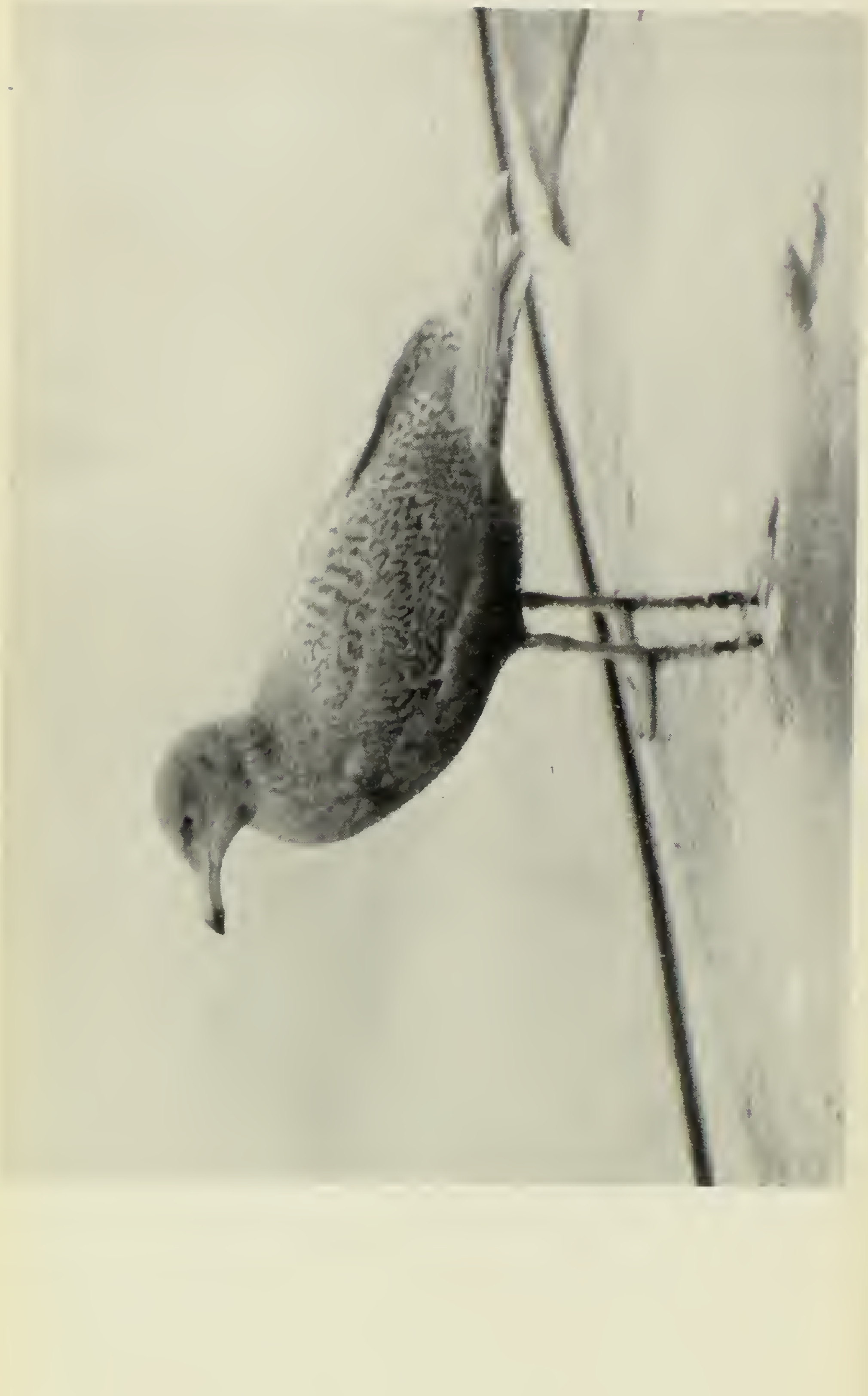
UPPER.—SMALL ADULT GLAUCOUS GULL, SWIMMING WITH HERRING-GULLS, LERWICK, SHETLAND.

(*Photographed by* John Peterson).

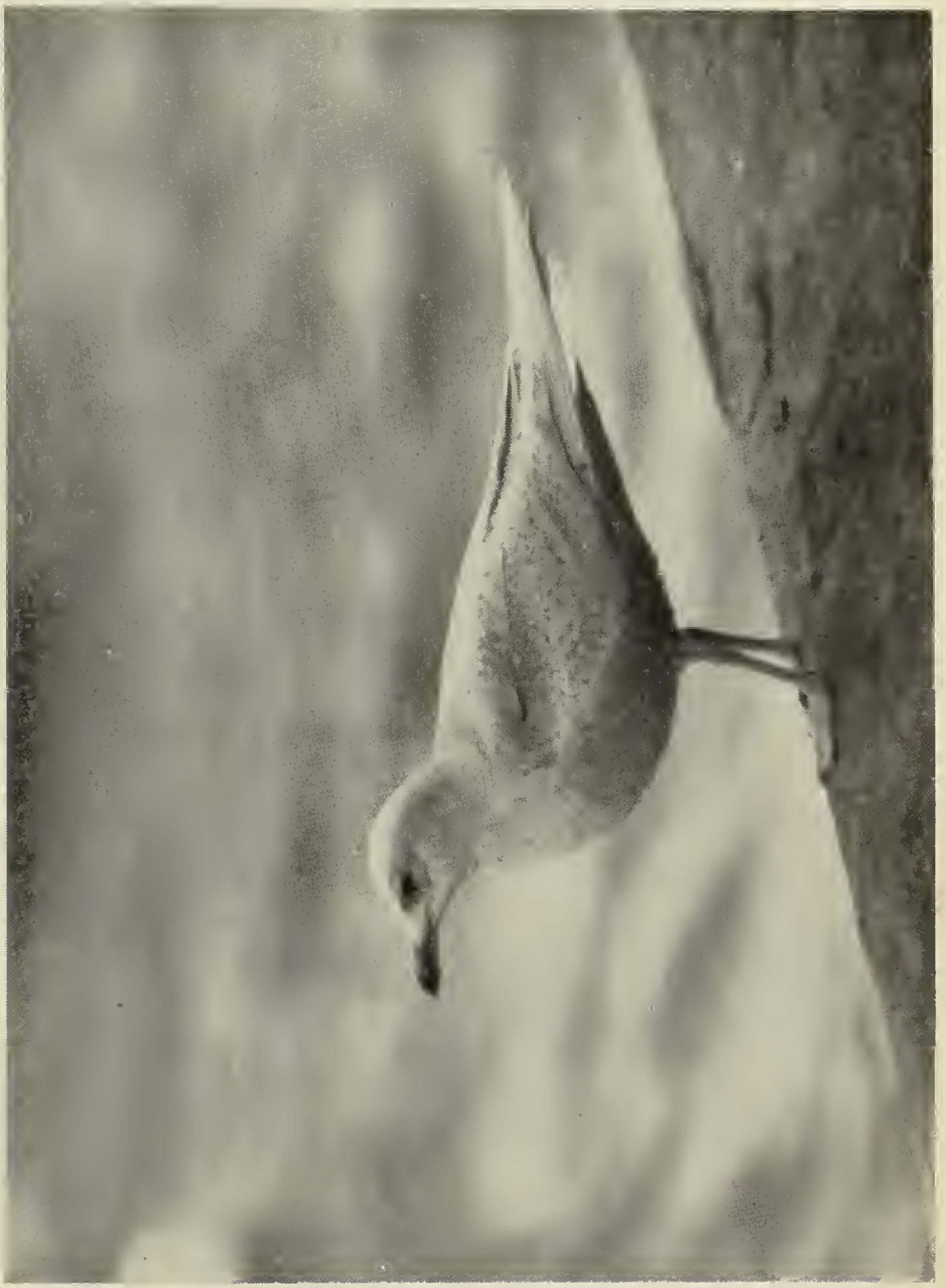
LOWER.—SMALL GLAUCOUS GULL.

(*Photographed by* J. D. Rattar).

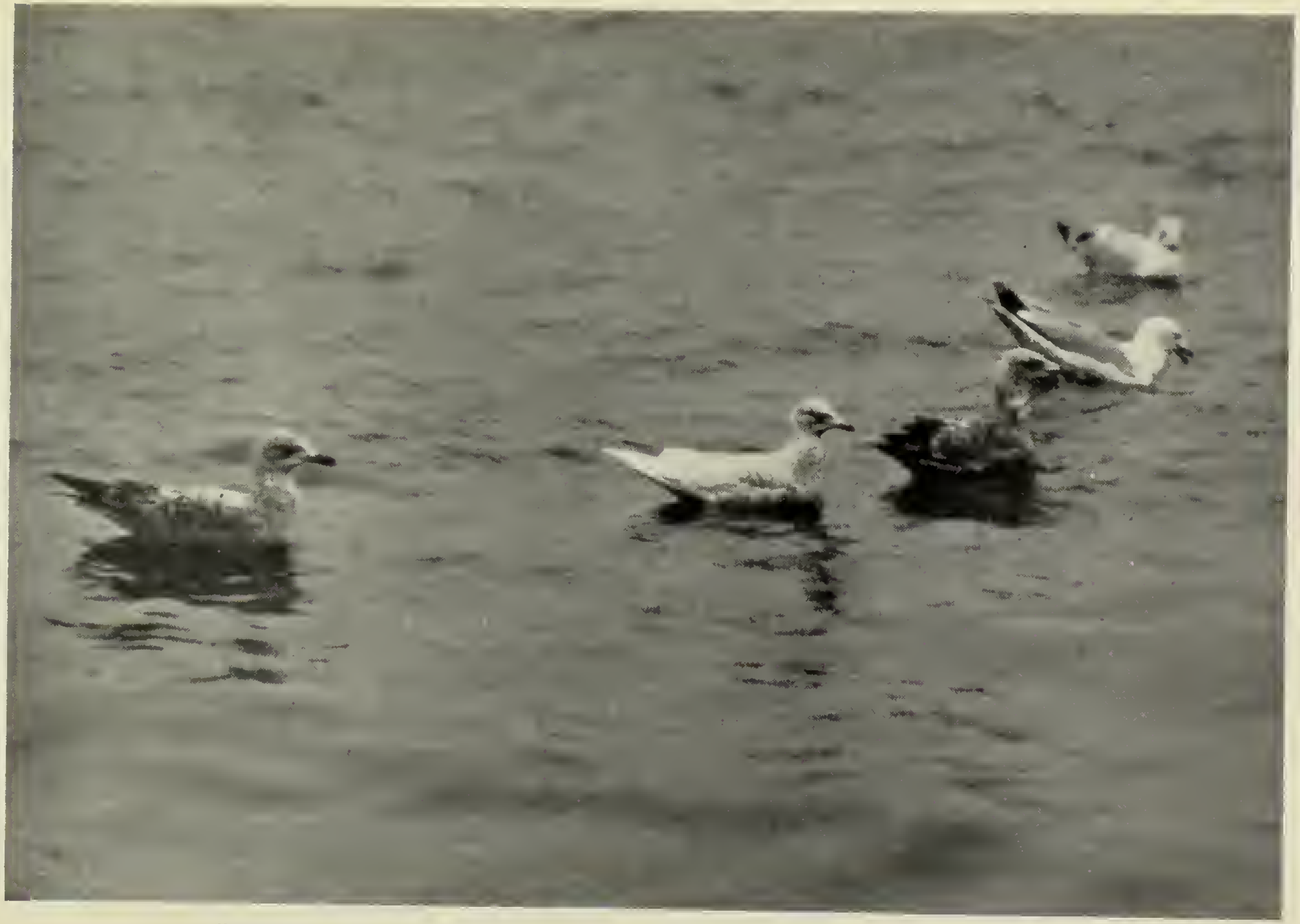
[The photographs in this and the preceding plate are all of the same individual, taken in April.]



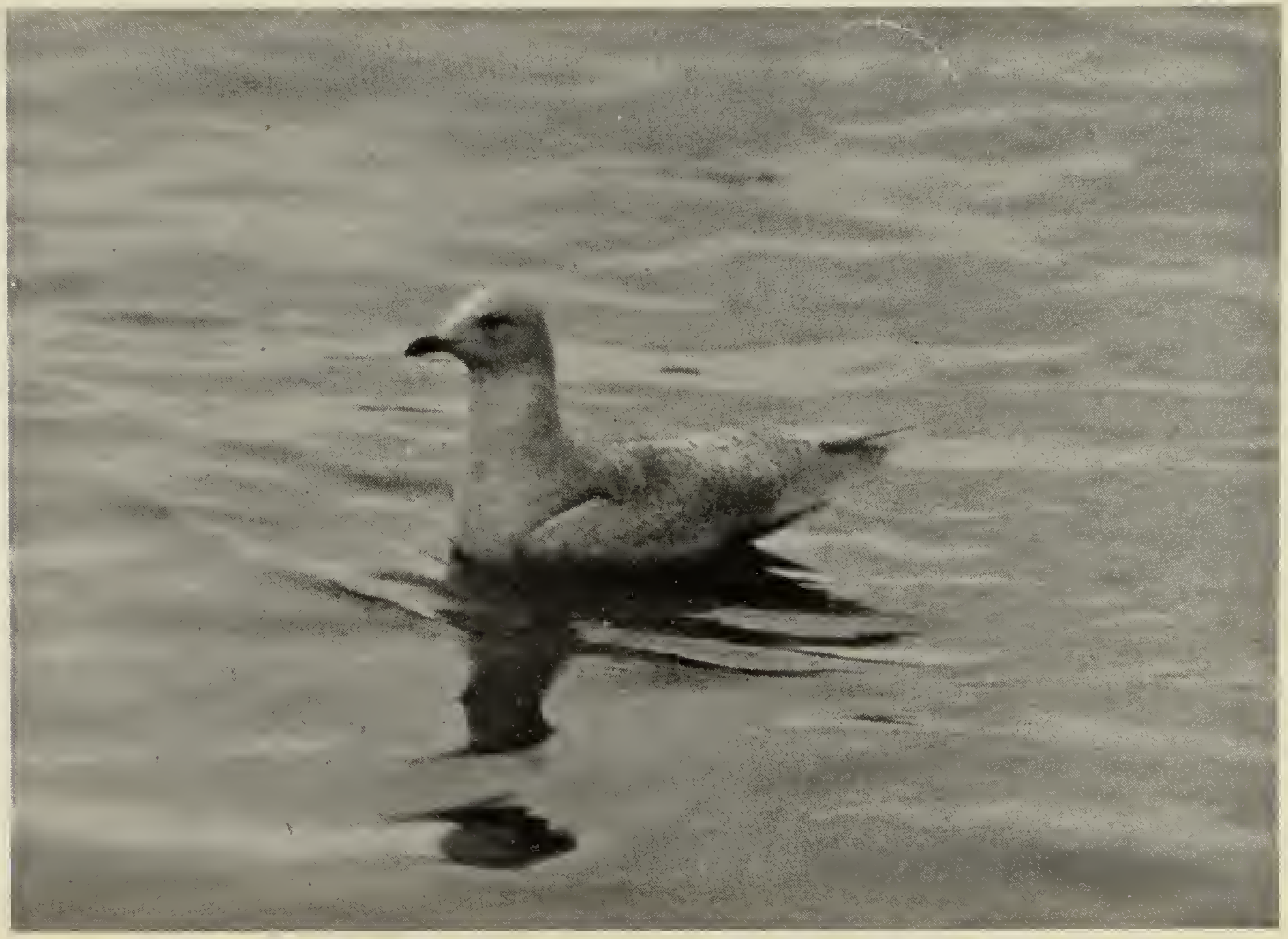
IMMATURE GLAUCOUS GULL, LERWICK, SHETLAND.
For comparison with Iceland Gull



IMMATURE ICELAND GULL, LERWICK, SHETLAND.
Note slight build, short beak, and very long wings.
(*Photographed by* J. D. Rattar).

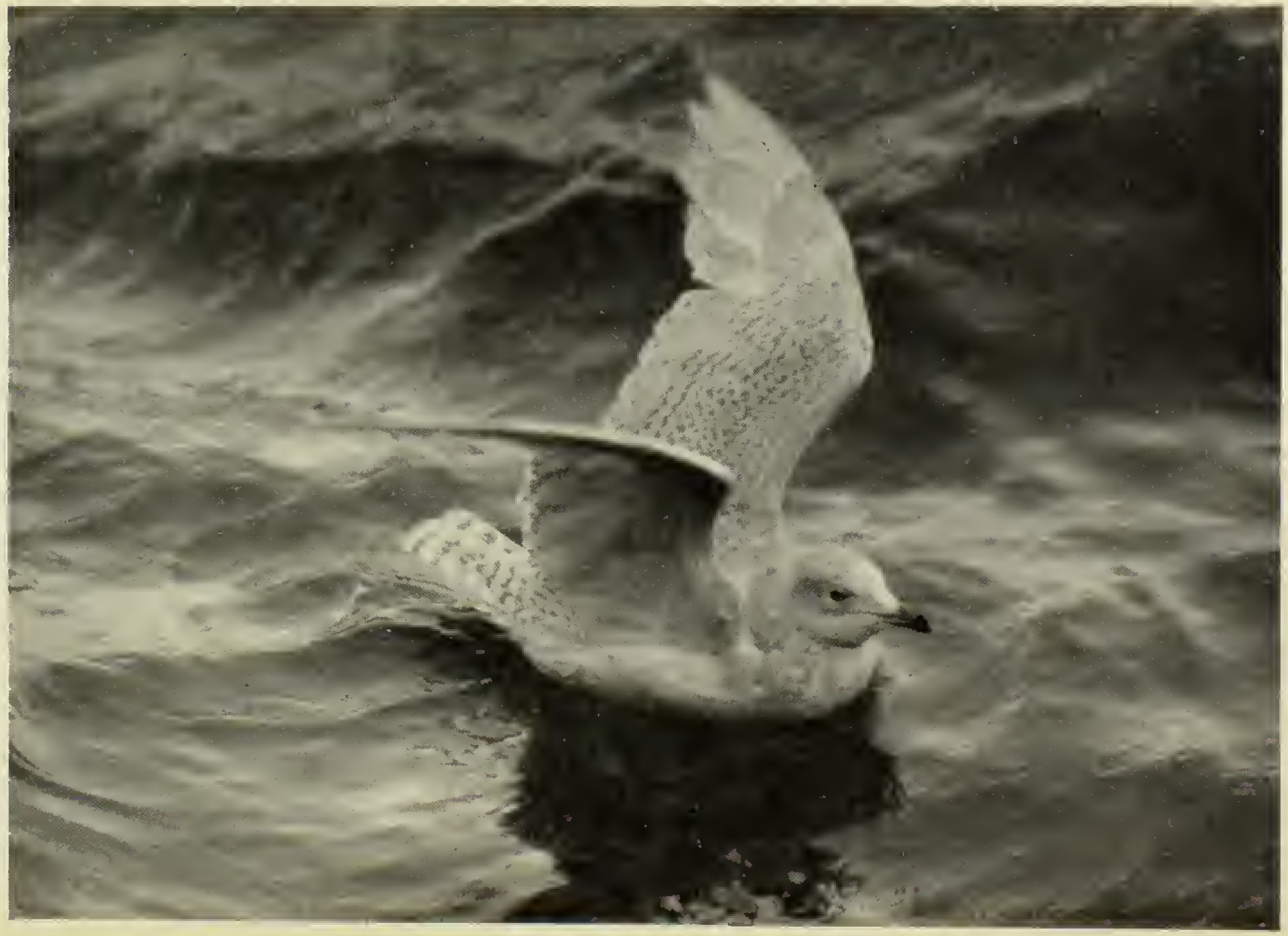


Immature Iceland Gull with Herring-Gulls, Shetland.
Note delicate appearance of head and bill in comparison with Herring-Gulls.



Immature Iceland Gull, Shetland.

(*Photographed by* J. D. Rattar).



IMMATURE ICELAND GULL, SHETLAND.

(Photographed by J. D. Rattar).

THE GLAUCOUS GULL IN WINTER

BY

G. T. KAY.

(Plates 40-53).

SINCE the winter of 1941-42 the Glaucous Gull (*Larus hyperboreus*) has become a comparatively numerous winter-visitor to the Shetland Islands. At a refuse dump on the outskirts of Lerwick where it had been rare to see more than half a dozen of these birds together, it is now a common occurrence to see thirty or forty and occasionally as many as a hundred. During the winter of 1945-46, the writer, with others interested in the project, arranged for an attempt to be made to photograph particularly Glaucous Gulls and possibly Iceland Gulls (*Larus glaucoides*) in the vicinity of the dump. The proposal was to use still and cine cameras from hides. It was hoped that a series of photographs might be secured which would do something towards clearing up the difficulties of distinguishing between these two species in the field, which have proved to be in some respects greater than used to be supposed. We were fortunate as regards the Glaucous Gull. A series of photographs and 300ft. of cine film were taken of this arctic visitor at most stages of plumage from the bird in its first winter plumage to that of the fully adult. Further photographs were added during the winter of 1946-47. Unfortunately the only Iceland Gull seen during these two winters was a dead specimen ; an immature bird in its first winter which had been captured on a fishing boat off the east side of Shetland on January 16th, 1947.

The following remarks are taken from notes kept by the writer during many hours spent at close quarters with Glaucous Gulls of all ages. Considerable attention was given to the feature of the degree of projection of the wing tips beyond the tail. It was noticeable that the wing tips of first winter birds reached well beyond the tail, whereas those of older birds did so in varying degree and, in some adults, not at all.

An explanation of this may be culled from *The Handbook* wherein is stated that, as regards moult, the first winter bird retains, throughout the winter, the full wing of its juvenile days, whereas the adult has a complete moult from July to November or December and occasionally its outer primaries are not fully grown even as late as February. J. Dwight, in "The Gulls of the World" (*Bull. Amer. Mus. Nat. Hist.*, Vol. LII) informs us that intermediate birds moult as does the adult. Of eight photographs of intermediate and adult birds, showing wing development, taken between January 1st and 18th, none shows a complete wing. In the writer's opinion, none of these wings would have been fully grown until well on through February. During the two winters under review the Glaucous Gulls left us early in February.

The difference between the wing structures of first winter and adult birds is clearly shown on Plate 40. The adult bird came into the writer's hands on December 18th, 1946, and the immature bird on December 29th, both in fresh condition. The wing of the immature bird is fully grown, while the growth of the outer primaries in the adult wing is such that the second primary had something over four inches still to grow on December 18th. Exactly one month later a photograph was taken of an adult with wings which had only then reached the same stage of development. Of particular interest regarding the above birds is the fact that both had fully-grown tails. The attenuated tips to the primaries of the first winter wing are well shown, a feature which is not repeated in subsequent moults, when rounded tips like those of the adult are grown. This feature has value in distinguishing between first and second winter birds at close quarters.

If the birds (some 30 to 40) towards which we directed our attention during the winter of 1946-47, when wing photography was concentrated upon, were average specimens, then the following generalizations may be made. The question whether the wing tips reach beyond the tail, in the winter months, is dependent on whether a bird is in its first winter or not. If in its first winter plumage, which is the darkest of the stages seen in Britain, the bird will have a fully grown wing reaching well beyond the tail. If it be an older bird, the projection may be nothing or very little up to the end of January, according to the development of the moult, and a fully grown wing is unlikely to be seen until February. It may be added that the only birds seen with wings which did not project at all were fully adult.

The soft parts of the Glaucous Gull are described in *The Handbook* as similar in colour to those of the Herring-Gull (*Larus a. argentatus*), with the exception of the orbital ring. The writer has found the following differences. The bill of the first winter bird is creamy flesh colour, with dark brown tip, the dark area being roughly one quarter the area of the bill. The dark tip decreases with age, but is still evident in birds which have assumed the grey mantle. The bill of the before-mentioned first-winter Iceland Gull was also creamy flesh colour with dark brown outer portion, but this portion was approximately half the area of the bill. The bill of the first winter Herring-Gull is of course all dark except for a small portion at the base of the lower mandible, which is pale.

The feet and legs of the adult Glaucous Gull, in the winter, are pinkish flesh colour, distinctly brighter than those of the Herring-Gull. Although the pinkish tint is not so bright in the immature birds, it is pronounced at all ages. Howard Saunders gives feet and legs of adult as "bright flesh pink"; a very good description. It is of interest here to note that Messrs. Nicholson and Longstaff, quoted in *The Handbook*, give pale flesh colour, with a leaden tint, as the colour of feet and legs of the adult Iceland Gull, in summer. Those of the adult Glaucous, in the winter, could never be so described.

When adult Glaucous and Herring-Gulls are seen close together, the difference in the colour of the irides may be noted ; pale lemon in the Herring-Gull, but buffish-lemon in the Glaucous. The iris of the first winter bird is dark brown and becomes paler, with a greenish tint, in the second winter. Even when examined at very close quarters with binoculars, the adult bird appears to have no colour in the orbital ring in winter. The adult handled on December 18th, 1946, had only the faintest trace of lemon-yellow in the orbital ring.

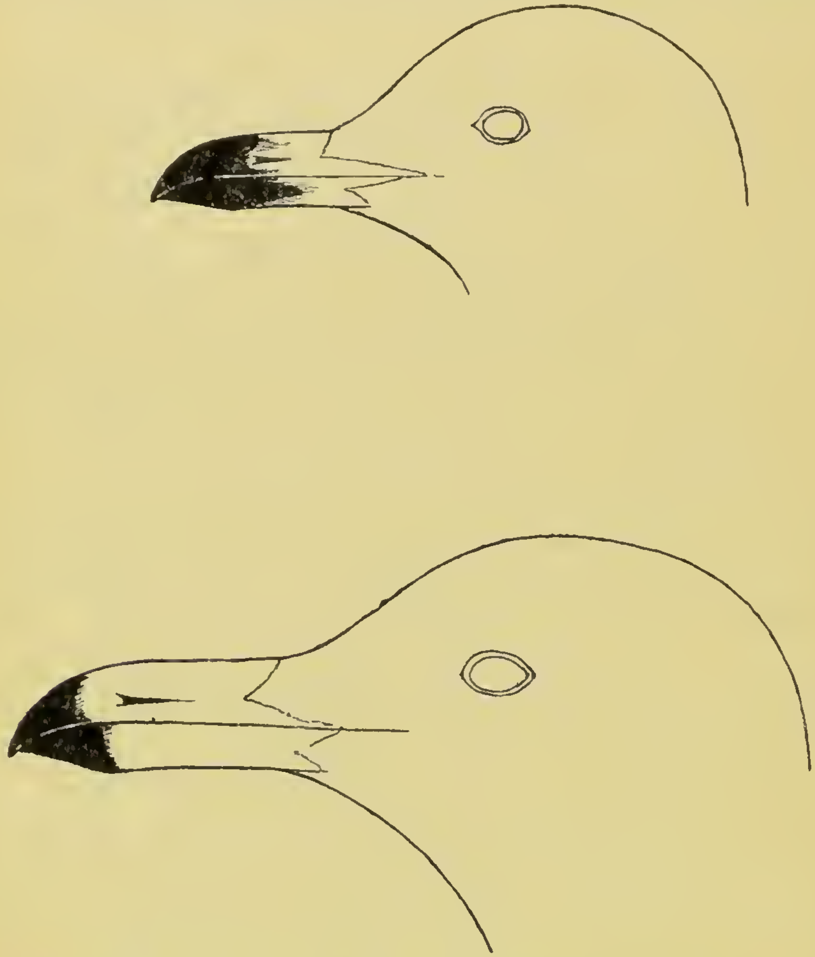
At other times silent, the adult Glaucous at the bait gives voice as readily as any of the other gulls. Its commonest call is the equivalent of the " kyow-kyow-kyow " of the Herring-Gull, but is much shriller and has nothing like the same carrying power. It resembles very much the first squeaky attempts of the immature Herring-Gull to make the call. The wailing note is very similar to that of the Herring-Gull, perhaps a shade more mellow.

The tamest of the three gulls, the Glaucous is generally the first to return to a bait after being disturbed and, being in possession, normally keeps off the Great Black-backed Gull (*Larus marinus*). The situation, however, is reversed when the Great Black-backed Gull is in possession. In the presence of any of these gulls, the Herring-Gull keeps discreetly in the background.

A difference in the size of individual birds is a feature which seems to be more noticeable with the Glaucous Gull than with other gulls. In addition to the wing measurements of a large Glaucous overlapping those of the Great Black-backed Gull and of a small Glaucous those of the Herring-Gull, the difference in the body bulk of individuals, as seen in the field, is very marked. Probably it is because of this difference in size that the slow wing-beat of the Great Black-backed Gull is noticeable in some birds and not in others.

The Handbook informs us that the moults of Glaucous and Iceland Gulls are apparently similar and this is confirmed by J. Dwight (*l.c.*). All that has already been said about the wing development of the Glaucous Gull will consequently apply equally to the Iceland Gull. Dwight also states that the one is simply a miniature of the other in every way. In the writer's opinion there are fairly distinct differences, apart from size. In any case size alone does not settle the matter as the small female Glaucous and the large male Iceland Gull come very near to each other in this respect. This brings us to the really small Glaucous Gull, one of which is well shown on Plates 47 and 48, a bird which is little if any larger than a Herring-Gull. This bird was photographed in mid-April, 1939, and no doubt shows the full length of the adult wing. It will be seen that the wing tips project beyond the tail quite considerably.

Why, it may be asked, is this bird a Glaucous and not a large Iceland Gull ? It was not seen by the writer but was identified by Mr. G. W. Russell, of Lerwick, an excellent ornithologist and most accurate observer, with great experience of sea birds, who has seen many Iceland Gulls in his time. Mr. Russell agrees that an ornithologist with only the photographs to go on might feel dubious as to the bird's identity, but in the field he had no hesitation in naming it as a Glaucous. The characters relied on were general appearance and behaviour, some aspects of which are difficult to put on paper. The principal features, however, were, comparatively slow wing action, the fact that head and bill were not markedly smaller than those of the Herring-Gull (see Iceland Gull in the company of Herring-Gulls on Plate 51), dominance over Herring-Gulls while in their company, and generally speaking the absence of Iceland Gull features, some of which will be mentioned. The Iceland Gull has a quick wing action, reminding one of that of the smaller gulls, such as Black-headed Gull or Kittiwake. Its build is more streamlined than that of the Glaucous Gull with the tips of the wings when fully grown projecting beyond the tail to a very conspicuous extent (see



HEADS OF FIRST WINTER ICELAND AND GLAUCOUS GULLS SHOWING DARK AREAS ON BILLS. BOTH EXACTLY HALF LIFE-SIZE.

(*Drawn by* G. T. Kay).

Plate 50). C. W. Townsend in A. C. Bent's important work "Life Histories of North American Gulls and Terns" *Bull. U.S. Nat. Mus.*, 113, 1921), stresses size of head when he says, " The size of head, neck and bill are, however, important field marks, for these are noticeably smaller in proportion to the size of the bird in the Iceland Gull than in the Glaucous Gull." Then again, as regards first winter birds, there is the difference in the colour of bills, as has already been described.

The text figure shows carefully prepared drawings of the heads of two first winter birds in my possession and these also bring out well the relatively longer, heavier bill of the Glaucous.

It may be imagined that, in the aggregate, these features do result in a difference in appearance and behaviour. As my friend puts it, " When you see a small Glaucous, there may be an element of doubt for a time, but when you see an Iceland Gull, there is no doubt about it."

The results of our two winter's activities may be summed up very briefly by saying that we have become better acquainted with the Glaucous Gull. Unfortunately we have been unable to add any photographs of the Iceland Gull to those valuable ones taken by Mr. Rattar many years ago and now reproduced. Always a scarce winter-visitor in Shetland, the Iceland Gull in recent years has become a rarity.

[Mr. Kay's observations and photographs are a notable contribution to our knowledge of the Glaucous Gull in the field and to the question of the distinctions between this bird and the Iceland Gull in life. In recent years it has become apparent that these two species may sometimes be more difficult to separate in the field than has been thought. In particular Mr. Kay's study shows conclusively that the widely held view that they can be distinguished by the wings of the Glaucous projecting little, if at all, beyond the tail, as stated by so careful and critical a worker as Howard Saunders amongst others, and accepted by me in *The Handbook*, requires considerable amendment. No doubt is now left that the wing of the Glaucous Gull, when fully grown, may project beyond the tail quite considerably, though by no means so far as in the Iceland Gull, and consequently the distinction between the two species in this respect is not so clear-cut as has been supposed. The most definite and trustworthy single character for smaller examples of the Glaucous Gull remains that of the relatively longer and heavier bill of that species as compared with the Iceland Gull, but the distinction may well be less marked in particularly small individuals of the former, and this seems to be borne out by the photographs of the small Glaucous Gull now published. It is evident that the identification of such birds (which, however, are evidently uncommon) may be very difficult, and perhaps almost impossible, for persons not familiar with the two species ; indeed on the basis of the photographs alone it would probably be argued by some that the bird was a large Iceland Gull. The author is, however, probably quite correct in holding any such view to be negatived by the opinion of experienced observers familiar with both species, who saw the bird in life. Everyone with wide experience of field identification will agree that great weight must be attached to such an opinion in cases of this sort.

It is a pity, for the sake of completeness, that no photographs, taken on the breeding ground, of adult Glaucous Gulls with fully grown wings appear to be available, but it may be hoped that it will be possible before long to fill this gap.—B.W.T.]

NOTES.

MALE PIED WAGTAIL BUILDING NEST.

I AM indebted to the Rev. L. G. M. Sheldon, of Crowborough, Sussex, who is an experienced ornithologist and at whose vicarage these notes were made, for providing me with the following facts.

In mid-April of this year, 1947, a cock Pied Wagtail (*Motacilla alba yarrellii*) arrived, and was often heard singing from the roof of the adjacent church and seen in the vicarage garden ; but there was never any sign of a hen bird. On May 4th, however, the cock was disturbed from a nest, which was built beneath some duck-boards protecting the gutter on the roof of the church ; this nest was thinly lined with horse-hair. A special look-out was kept for a female, but there was only the singing cock to be seen.

On June 6th, the male disappeared for two or three days, then returned with a mate. A fresh nest was built in an almost exactly similar position beneath the boards a few yards away, but unfortunately it was not observed whether one or both birds took part in its construction, and, in fact, it was not found until holding young on July 1st.

It is stated in *The Handbook* that the female alone builds ; but in the present case not only did the male build the first nest alone, but from the similarity in the position of both nests it would seem that it had a share in the site selection of the second as well.

J. M. CULLEN.

[Two other instances of a male Pied Wagtail building are given by Mr. J. C. S. Ellis in *Brit. Birds*, Vol. xxvi, p. 162, and Vol. xxvii, p. 48. Mr. Cullen's record differs from these in that the male was apparently unmated when building, whereas that observed by Mr. Ellis built a separate nest within two feet of another built by the female ; also in that lining was added by the male, for in the second case recorded by Mr. Ellis both birds built in the early stages only, and lining was added by the female alone.—EDS.]

COURTSHIP FEEDING OF BLUE TIT.

I OBSERVED courtship feeding of adult Blue Tits (*Parus cæruleus obscurus*) 17 times in a Derby suburban garden, between April 26th and May 7th, 1946, on a horizontal pole nine feet from a living room window. On five occasions the presumed male fed the presumed female without the slightest ceremony, but at all other times he presented a small piece of fat when she was crouching close to the pole, quivering drooped wings and uttering a sustained trill. She invariably fed herself on fat suspended from the pole immediately after the ceremony, which never led to coition. On May 19th and 24th, and June 2nd he did not respond to her display.

DEREK C. HULME.

[Although the feeding of the incubating female on the nest is well-known in the British species of *Parus* (cf. *Handbook*), it is curiously enough only recently that attention has been drawn to the regular occurrence of courtship feeding away from the nest and, in some cases at least, evidently before incubation has begun. This form of behaviour has now been noted in the present volume in all the five common species of tits, in the Great Tit (*P. major*) on April 29th (p. 213), in the Coal-Tit (*P. ater*) on April 14th, April 28th and May 6th (pp. 51, 214, 177), in the Marsh-Tit (*P. palustris*) on April 25th and May 3rd (pp. 51 and 214) and in the Willow-Tit (*P. atricapillus*) on May 3rd (p. 51). It is worth noting that the Coal-Tit case of April 14th almost certainly occurred before nesting had begun and the first Marsh-Tit case was definitely during building ; others may well have been before incubation had started. Feeding of the female off the nest during incubation is also recorded in the Supplementary Additions to *The Handbook* for the Coal-Tit by Lt.-Col. B. H. Ryves, who found it more regular than feeding *on* the nest. Further observations on all species *with special reference to the stage of the breeding cycle* would be of value.—EDS.]

PIED FLYCATCHER NESTING IN WEST YORKSHIRE.

ON June 9th, 1944, whilst five members, including myself, of the Natural History Section of the Hebden Bridge Literary and Scientific Society, were inspecting ferns growing in the wall of the bridge over the stream at Hardcastle Crags, we were surprised to see a small black and white bird carrying a caterpillar dart under the bridge, perch on a small iron projection and then vanish into a crevice some seven feet high in the wall of a building which bounded that side of the stream.

The bird was readily identified as a Pied Flycatcher (*Muscicapa h. hypoleuca*). Observation was maintained by all of us for 20 minutes and during that time fourteen visits were made to the nest by the one (male) bird, which, on each occasion, was seen to be carrying a small green caterpillar obtained from some bushes 30 to 40 yards away.

A return visit two days later revealed no trace of any of the birds and it was presumed that the young had flown.

The fact is regarded as being of special interest because of the extremely local occurrence of the species. There is no record of the birds having been seen in the locality since 1944.

N. M. HEPWORTH.

LESSER WHITETHROAT HEARD IN PERTHSHIRE.

ON May 25th, 1946, I heard the song of a Lesser Whitethroat (*Sylvia c. curruca*) at Rumbling Bridge, near Dunkeld, Perthshire. The song was being delivered persistently from the slopes on the north bank of the river Bran, but owing to the precipitous gorge it was impossible to get a view of the bird, with whose song I am very familiar in England. On a subsequent visit no signs of it could be found.

It is unfortunate that sight confirmation could not be obtained, but as there are few records of the occurrence of this species in the east and central mainland of Scotland, the above facts seem worth recording, especially in view of the season and the suitable habitat.

JAMES W. CAMPBELL.

[It should be noted that, as Mr. E. M. Nicholson has stressed (*Songs of Wild Birds*, p. 124), the Whitethroat (*Sylvia c. communis*) has an occasional song variant which is indistinguishable from the Lesser Whitethroat's rattle. However, as Dr. Campbell's bird was using the rattling song "persistently" and no other, the possibility that it was a Whitethroat using the uncommon variant referred to seems so slight as hardly to be worth entertaining seriously. It may be mentioned that on July 6th, 1941, we (B.W.T.) had an almost identical experience near the head of Loch Morlich on Speyside (Inverness-shire), though, as we failed to get a view of the bird, it was not recorded at the time.—EDS.]

INLAND FLOCKING OF CURLEWS.

MR. W. Wilson's note of 2,000 Curlews (*Numenius a. arquata*) near Malham Tarn on August 27th, 1946 (*antea, p.* 90), raises a point of considerable interest. On September 29th, 1946, that is about a month later, we watched a flock of about 700 Curlews within seven miles of the same locality between Settle and the village of Long Preston. The birds were feeding and wheeling about the water edge of extensive field flooding and were accompanied by a number of Lapwings, Black-headed Gulls and a few Common Gulls. In the light of these and previous observations (A. Welch watched a flock of 2,000 to 3,000 Curlews by the River Eden at Culgaith, Cumberland, 35 miles from the coast, on October 3rd, 4th and 5th, 1944), it would seem that large inland flocks of Curlews are by no means so very exceptional as *The Handbook* asserts.

ARTHUR WELCH AND CLIFFORD OAKES.

[At the time when *The Handbook* was in preparation we had no evidence of really large flocks of Curlew occurring regularly far inland in the British Isles. Although it is now recognized that such flocks do occur regularly, or at least frequently, in certain localities or districts, it would still be correct to state, on the evidence available, that the number of such is very small.—EDS.]

OYSTER-CATCHER WASHING WORMS.

As there has been only one record published in *British Birds* of an Oyster-catcher (*Hæmatopus ostralegus occidentalis*) washing worms (*antea*, Vol. xxxix, p. 378) the following may be of interest. On April 13th, 1947, a number of these birds was feeding on the mud on the Exe estuary, about 20 being within easy watching distance.

Birds of this group were repeatedly seen to pull worms out of the mud and carry them to small pools of water, to the edge of the tide or into a little gutter where they dipped their prey into the water and swallowed them without lifting their heads.

I noticed that occasionally a bird would swallow a worm without having first washed it, though at times such a bird would first walk a short distance with the worm in its beak as if trying to find a suitable washing place. R. G. ADAMS.

BLACK TERNS IN CO. WESTMEATH.

ON May 28th, 1947, in the Co. Westmeath portion of Lough Kinale I had two Black Terns (*Chlidonias n. niger*) under observation for about half an hour. Often the birds came close to me so that without using binoculars the white under-tail-coverts were easily discernable and in addition the slate-grey wings and tail and contrasting black of head, neck and under-parts of breeding plumage. The birds indulged in frequent chases with much calling, sometimes flying up to a considerable height. Eventually they disappeared to the north-east.

Mr. R. C. Faris visited the lake on June 29th, but saw no Black Terns.

This tern is at all times a rare vagrant to Ireland; is very rare in spring and quite exceptional in non-maritime countries.

ROBERT F. RUTTLEDGE.

THE EFFECTS OF THE COLD SPELL.—We venture to draw the attention of our readers again to the appeal on p. 189 for information on the effects of the cold spell in the early part of the year. We have received a substantial amount of material, but in some ways the response has been disappointing. It amounts at present to decidedly less than was received after the cold spell and glazed frosts of 1939-40, although the facts that the latter occurred when many people were on war service or otherwise preoccupied and that the cold spell this year was one of the longest and most severe in living memory would have justified the expectation of a larger response than on the previous occasion. We thank all those who have been good enough to send in reports and urge all those in a position to do so who have not yet responded to send in information if possible before the end of the year and before the end of January at the very latest. As previously mentioned, it would be very helpful if recorders and editors of county reports could supply us with summaries for their areas and we hope those who have the opportunity of doing so will make special appeals to their members for information. The conditions were so exceptional that it is highly important that the effects should be recorded as thoroughly as possible.

LATE SINGING OF BLUE AND COAL-TITS.—Mr. F. Fincher informs us that on August 1st, 5th, 8th, 1946, and also on August

1st, 1944, near Bromsgrove, Worcestershire, he heard a Blue Tit (*Parus cœruleus obscurus*) in song. On August 1st, 4th, 7th, 13th, 1944 ; August 1st, 1945 ; August 1st, 5th and 7th, 1946 ; he heard a Coal-Tit (*Parus ater britannicus*) in song also near Bromsgrove. *The Handbook* chart shows no song for either of these species for the first half of August.

SPOONBILLS IN ESSEX.—Mr. John N. Mead sends us particulars of three Spoonbills (*Platalea l. leucorodia*) seen by him on a salt-marsh as St. Osyth on April 5th, 1947. They were evidently two adults and an immature bird, as one had a prominent crest and the second was seen to have the orange-buff patch at the base of the neck, while the third had not this marking.

EIDER-DUCKS ON KENT COAST.—Messrs. T. M. Gullick and D. A. G. Simpson report a party of five drake and three duck Eiders (*Somateria m. mollissima*) seen by them off the shore between Birchington and Reculver in Thanet on January 7th, 1947. They were also reliably informed of a duck Eider shot by a wildfowler on the Stour on December 19th, 1946.

As the Eider-Duck has greatly increased in the last few years as a breeding bird in the Friesian Islands (Holland) it seems likely that its occurrences on the south-east coast of England will become more frequent.

LATE SINGING OF STOCK-DOVE.—Mid-August song in the Stock-Dove (*Columba œnas*) has already been recorded in these pages (*antea*, pp. 23, 188). More recent notes of Mr. P. F. Yeo from North Wales, recording song on August 8th and 15th, 1945, and of Mr. R. E. Pochin from Leicestershire, recording song and display on August 6th and 23rd, 1944, August 12th and 25th, 1945, and August 11th, 18th and 24th, 1946, are further confirmation of irregular song throughout this month.

EXCEPTIONAL PASSAGE OF BLACK TERNS IN 1946.—For completeness the following records from the Norfolk report which were unfortunately not sent to us direct, should be added to those already published (*antea*, pp. 24-26, 93) :—

Appeared at Cley on May 4th and sixteen seen there, May 11th ; one also seen there, June 11th. First seen at Hickling, May 1st ; maximum fourteen on May 13th. One, Breydon, May 14th (one is also recorded there on May 11th : *Rep. Lowestoft Field Club*). Two, Scolt, May 2nd, and noted again, June 13th and 18th. Forty, Blakeney Point, May 11th.

HERRING-GULL BREEDING IN EAST KENT.—Drs. J. M. and J. G. Harrison report the first breeding of the Herring-Gull (*Larus a. argentatus*) in East Kent and Thanet. On July 13th, 1947, a nest was found with two well-grown young on the White Ness cliffs between Cliftonville and Kingsgate ; the adults were in attendance.

REVIEWS.

LOCAL REPORTS.

[No reference is made in these notices to the Waxwing invasion of 1946-7 or inland occurrences of Curlew-Sandpipers and Little Stints in 1946, as these are covered by special reports in this and the following issues.

Cornwall Bird-watching and Preservation Society : Sixteenth Annual Report 1946.

The Cornwall Report again contains much useful and interesting information, including a considerable amount of breeding data by Col. Ryves and a number of notes on habits, etc., as well as faunistic material. Three breeding pairs of Choughs are recorded, two of these evidently rearing young successfully, and it is gratifying to learn, after the onslaught on the Peregrines during the war, that pairs of these birds bred successfully at two sites and reared one and two young respectively. Short-eared Owls bred successfully for the fourth consecutive year and the nesting of a second pair is suspected. A pair of Blue-headed Wagtails bred in Marazion Marsh : coition and, later, a young bird accompanying the parents were seen. Fulmars are known to have bred at five sites on the north coast, including Trevone, where breeding took place in 1944, but not in 1945. Colonies appear to be forming, though breeding was not proved, at several other points, including Land's End, and a pair probably bred on the west side of the Lizard peninsula, indicating an eastward extension along the south coast of the county. The Kittiwake colony found by Mr. Buxton on Gorregan in the Scillies in 1945 (*antea*, Vol. xxxix, p. 190) was again occupied, but none bred on Menavawr. Arctic Terns, whose breeding on Annet in 1945 was also recorded by Mr. Buxton (*l.c.*), apparently bred again in 1946, but there seems to be some conflict of evidence on the subject. Five pairs of Arctics and a young one just able to fly are recorded on Tean in August. One pair of Roseate Terns was identified on Annet. The continued increase of Great Black-backed Gulls (the astonishing number of approximately 100 breeding pairs is recorded on Annet alone) is stated "to threaten seriously the continued existence of Puffins, and to a lesser extent Shearwater, on the Islands," and it seems a pity some judicious control measures cannot be adopted. Nevertheless, in spite of the destruction on Annet, Manx Shearwaters have "spread considerably to other islands."

Of rare birds the most notable are : a male Woodchat at St. Helen's, Scilly, on May 12th, a Wryneck at Tintagel on October 3rd and 8th (the first record for the mainland), a Sooty Shearwater off Newquay on July 18th, and a Kentish Plover on September 4th. The last-mentioned record is presumably sound, as the observer was familiar with the species in Spain and the legs are stated to have been definitely black "and the other marks of identification seen"; all the same it would have strengthened the record to mention what these were.

There are quite a number of Spoonbill records from five different areas. These are quoted in a most confusing way without any relation of locality or date, but boil down to: two on Marazion Marsh in April and one in November, one on Camel Estuary in June, three on Ruan Estuary (Fal) in September-October and four to five in December, one near Newquay in October, and one on the Helford River in December. There are also records of a drake Red-crested Pochard on the Ruan River on December 19th, an immature drake Eider off the entrance to the Fal on the same day, a Stone-Curlew on Burnt Island, St. Agnes, Scilly, on May 4th, and a Little Auk seen at close range off Newquay by two different observers on June 4th and July 10th, most exceptional dates.

More Black Redstarts were recorded than usual and there are four phalarope records for the autumn. Two, off Par Beach on August 29th and at Looe on November 25th, were definitely identified as Grey Phalaropes, one (Par Marsh, December 2nd) is doubtful and a fourth (Marazion Marsh, September 23rd) had a very black crown and was believed to be a juvenile Red-neck, but the leg-colour suggests the Grey. An Iceland Gull reported near Porthmissen Farm on April 8th appears to have been satisfactorily identified, as

Herring-Gulls were also present for comparison and the particularly long wings were noted. A record of a bird believed to have been a female or juvenile Black Woodpecker is rightly given in square brackets with full details. Dr. Blair, who saw it and with whom we have corresponded on the subject, is fully convinced of the correctness of the identification. Admittedly it is difficult to suggest an alternative, but unfortunately no red was seen on the head (if confined to the back of the crown as in a female or juvenile it would apparently not have been visible in the position in which the bird was viewed), but there are disconcerting points in the description, such as an apparent downward curvature of the beak, and we think the Editors' attitude of caution is correct.

A most unsatisfactory record is the bald statement under Scandinavian Lesser Black-backed Gull that in a very large colony on St. Helens, Scilly, " a considerable proportion appeared to be of this species [sic], and that these were breeding birds." As it is quite incredible that birds of real Scandinavian origin should be breeding in Scilly, presumably all this statement can mean is that there was marked variation in the colony and that a number were unusually dark, but in the absence of any details what might have been an interesting observation is worthless.

Of the many notes on bionomics may be mentioned : a record of Rooks repairing a nest of which the bottom fell out, by working underneath and outside it, display flight of Linnet, Chaffinch nesting at least 75 feet up in a pine, Blackbirds feeding on shore, subsong of Wren in nest and young returning to nest after fledging, "injury-feigning" of Kestrel, a February record of Whimbrel, Herring-Gulls nesting on chimney-pots and other sites on buildings and on a flat beach, Guillemots nesting under boulders like Razorbills, and isolated nests of Common Terns on comparatively high ground in Scilly. An incubation-period of 20 days is recorded for the Tree-Creeper (14-15 days is usual, according to *The Handbook*) and for Goldcrest an incubation period of 14 days and fledging-period of 23 days (*cf.* "probably about 18-20 days" : *Handbook*). There are also special observations at a Raven roost in a wood, at which up to about 150 birds were counted, and on nest-construction by House-Martins, and some notes on heronries of the Fal and Helford esturaries.

Report on the Wild Birds of Leicestershire and Rutland, 1946. Edited by G. Harold Hunt.

The titles of this report on the cover and title page are different, which should surely be corrected in future years. We have used the second, which is clearly preferable to the cumbersome *Leicestershire and Rutland County Report of Wild Birds*. And is not even "Wild" superfluous ?

The Report is again a good one, nicely produced and with several photographs, and retains the form and style of earlier ones though appearing under new auspices, as what was originally the Ornithological Sub-section of the Leicester Literary and Philosophical Society has now been transformed into an entirely separate body, the Leicestershire and Rutland Ornithological Society. We wish the new organization every success.

There are numerous notes on details of local distribution, which will all be valuable in working out the county fauna more precisely, and a good many on song-dates and other points. Special attention was paid to Great Crested Grebes during the year. Twenty pairs with nests are recorded and 33 young are known to have been hatched. At the Eye Valley Reservoir, where only three pairs nested, 35-40 non-breeding birds were present in May, June and July, and as many as 150 on the autumn passage, in the first week of October. Curlew almost certainly bred or attempted to do so near Normanton-on-Soar. At least a hundred pairs of Black-headed Gulls nested in a colony near Ashby-de-la-Zouch (first recorded in *Brit. Birds*, Vol. xxxix, p. 224), though few reared young, and details for previous years back to 1943 are given. Corncrakes were more widespread than for a number of years and a record of one calling on March 30th is unusually early.

Amongst records of rarer occurrences the following may be noted : a male Blue-headed Wagtail at Swithland on May 18th, unusual numbers of Short-eared Owls (up to 24 were seen on the Leicester Sewage Farm in February), a Rough-legged Buzzard clearly identified at Swithland Reservoir on October 24th and one, probably the same, shot (to the discredit of those concerned) at Nanpatan, about five miles away, on the following day; eight Brent Geese at the Eye Valley Reservoir from February 25th to March 3rd (two were thought to be Light-breasted and six Dark-breasted, but it seems unlikely that both races would be included in such a party), remarkable number of Pintail at the same reservoir in January and December (already recorded in our pages), a Shag at Ibstock on September 5th, several records of Red-necked Grebes already published in *British Birds*, single Bar-tailed Godwits at the Eye Valley Reservoir on March 28th and May 3rd, a Sandwich Tern there on May 27th and two on July 10th, a first winter Little Gull at Belgrave on November 15th, and a Spotted Crake shot near Kilby Bridge on September 21st. There are also a number of records of the scarcer waterfowl and waders, including Whooper Swan, Red-breasted Merganser, Turnstone, Knot, Sanderling, Wood-Sandpiper, etc. A possible record of two Broad-billed Sandpipers at the Eye Valley Reservoir is rightly square-bracketed : it is possibly correct, but the apparently rather slight difference in size and colouring from accompanying Little Stints must raise doubts.

There are special articles on the change in bird-life during the growth of a Charnwood conifer plantation and on Great Crested Grebes at Swithland Reservoir. Messrs Jolley and Storer give a brief interim report on their work on Sand-Martins: insects taken from the beak of a bird, captured when about to feed young, and subsequently identified at the British Museum are listed.

Ornithological Report for Northumberland and Durham for 1946. Compiled by George W. Temperley (Reprinted from *The Naturalist*, July-September 1947).

The record of Black-necked Grebes breeding in Durham and of a Sabine's Gull on Holy Island have already been published in *British Birds*. Goosanders bred again in Coquetdale and breeding is also recorded in the Alwinton district, Northumberland, where apparently the species is well established, and on one of the tributaries of the North Tyne. Two pairs of Pochard reared young in Co. Durham (where the last case of nesting appears to have been in 1933), and two pairs of Garganey seem to have attempted to breed in the north-east of the county, though evidently without success. In the Farnes, two pairs of Roseate Terns bred on the Brownsman, where Sandwich Terns also did well, though the number (now about 120 pairs) has greatly diminished compared with pre-war years. No Common Terns are known to have bred in the Farnes, but Arctic Terns did well. An increase of Pied Flycatchers is recorded and the Little Owl is still spreading. Grey Lag Geese are now wintering regularly in Northumberland and up to 382 are recorded in the Fenham area. Black Grouse are " reported to be dying out or very scarce " in several districts of both counties. Some data on the local distribution of Marsh- and Willow-Tits are given. Corncrakes were more in evidence than for many years.

There are almost certain records of a Little Shearwater off Alnmouth on September 15th and of three Great Shearwaters in Marsden Bay on September 8th. A Hoopoe (the first to be recorded in either county for many years) was seen on May 22nd near Shotley Bridge in the Derwent Valley and two Dotterel were seen on a fell in the area in mid-May, but evidently did not stay. Amongst other notes in this useful report may be mentioned : a bright red-billed Heron seen on March 16th (*cf. antea*, Vol. xxxviii, pp. 149 and 180), a case of an adult Mallard duck diving, and one of Woodcock carrying young.

Yorkshire Naturalists' Union : Committee for Ornithology Report for 1946. Edited by Ralph Chislett. (Reprinted from *The Naturalist*, April-June, 1947).

The Yorkshire Report as usual contains a large amount of data carefully digested and edited. Garganey were present at Swillington in summer, though definite nesting is not claimed. Black-necked Grebes nested in at least two localities, in one of which two pairs had eight well-grown young on September 8th. Breeding of Gannets was not proved at Bempton, though birds were present. An extension of breeding range of the Nuthatch to Thornton Dale is recorded, as is the spread of the Little Owl to the higher reaches of the Dales. A continued decrease of breeding Lapwings is noted. There are records of Corncrakes from several places.

Of the more uncommon species may be mentioned: two examples of *Carduelis hornemanni* in a flock of 12 Mealy Redpolls near Kilnsea Beacon on November 2nd, a large pipit which appears to have been a Tawny, but might possibly have been a Richard's Pipit, at Spurn on September 23rd, a young Red-breasted Flycatcher ringed at Spurn on September 29th, an adult male Black Redstart feeding a recently fledged young one near Rotherham on June 23rd (this important record does not appear to have reached the organizer of the Black Redstart Inquiry), an adult Wryneck with a family of 5 or 6 young near York in July (the Wryneck is rarely recorded breeding in Yorkshire), two Marsh-Harriers at Cherry Cob Sands on May 10th, and a Little Crake seen at Spurn on December 28th. There are also two records of Hoopoes, two of Ospreys in addition to one already published in *British Birds* and a good many others of more or less scarce birds.

Several other records are of more than passing interest. Magpies flourish in the suburbs of large Yorkshire towns and no less than 258 occupied nests were recorded in 1946 within roughly a five-mile radius from the city centre of Sheffield, about half of the area in question being "built-up." Jays are numerous in the gardens of residential areas of Harrogate and Sheffield. A male Pied Flycatcher at Goathland was without black except on the tail; a similar male occurred at Cropston and males in dark grey-brown plumage are stated to be not rare in the county. Some ten years ago Dr. R. Drost, of the Heligoland Bird Observatory, showed that a large proportion of breeding male Pied Flycatchers in middle Europe have little or no black (in other words they reach maturity without acquiring what must be regarded as the full adult plumage), whereas in Scandinavian birds black predominates. Information with regard to the British population is extraordinarily inadequate in this connexion, and precise observations on the proportions of black-, partly black- and brown-backed birds in different areas would be well worth obtaining. There are also records of courtship flight of a pair of Green Sandpipers observed at Osset Spa on April 14th (unfortunately no details are given), unusually large inland gatherings of 300 and 600 Curlew, and a case of Woodcock carrying young.

Birmingham and West Midland Bird Club: Thirteenth Annual Report on the Birds of Warwickshire, Worcestershire and South Staffordshire, 1946.

The Birmingham Bird Club has broadened its title as above and the report is also enlarged. A pair of Crossbills was observed at Sherriff's Lench, Worcestershire, on April 3rd, but no evidence of breeding was obtained. The breeding of Pochard at Chesterton, Warwickshire has already been recorded in *British Birds.* An extension of the breeding-range of Curlew for six to seven miles up the Avon valley in Warwickshire is recorded. As usual there is a fair crop of records of the scarcer waterfowl and waders from the reservoirs, amongst which may be mentioned Whooper and Bewick's Swans, Turnstone (including two at Shustoke Reservoir, Warwickshire, December 15th, which appear to provide the first fully authenticated record for the county), Temminck's Stint (one, Lower Bittell, Warwickshire, October 11th to 15th), Wood-Sandpiper, Sanderling, Oystercatcher, Grey Plover, etc. A record of a flock of 30 Common Scoters (29 females and one immature) at Bartley Reservoir, Warwickshire on November 7th-8th, is remarkable. There are several records of Corncrakes.

Some special notes on the birds of Bartley Reservoir, 1931 to 1946, and a migrant table are included. The erroneous record of a Golden Eagle in the previous report has already been corrected in *British Birds*, and we note that the flock of 13 Common Scoters seen at Bittell on May 26th, 1945, were all adult drakes and that the October party consisted of one adult drake and 12 " juveniles." But how were the juveniles distinguished from the females?

Report of the Cambridge Bird Club, 1946. Editor R. A. Hinde.

As in previous years notes of passage birds at the Sewage Farm are given in a separate section from the rest and the Sewage Farm bulks largely in the Report. The extraordinary event of the breeding of a pair of Moustached Warblers has been fully recorded in *British Birds.* Short-eared Owls were particularly numerous on the marshes in November and December. An Arctic Skua found dead at Wicken has already been recorded in our pages. Two immature Long-tailed Ducks which were present at the gravel pits near the Sewage Farm from November 8th to 16th represent the third record for Cambridgeshire. A Snow-Bunting was seen there in November. There are various records of the scarcer waders (we have published a note on the unusual number of Knot) and one of a probable Broad-billed Sandpiper. A description is given of this last and there are considerable grounds for thinking that the identification is correct, including the references to the bill being " decurved fairly sharply towards the tip " and the pale longitudinal lines on the very dark crown. On the other hand the description of the back as very similar to that of a Little Stint in colour and appearing "*dark* chestnut-brown with feathers edged golden buff " and with two broad black lines along the sides does not tally well with this species, in which, although the feathers are buff-edged, their more central parts are nearly black and the effect of lines on the back is of light on a dark ground, not the reverse. It is possible that these discrepancies, as they strike us, can be explained away ; they are not fatal to the identification, but they are bound to raise some element of doubt, even although the other characteristics fit well and although the record receives a certain circumstantial backing from at least two definite Broad-billed Sandpipers having occurred in Great Britain, in the autumn of 1946. Unfortunately it appears that the note, which is very distinct, was not heard.

An example of the arctic race of the Ringed Plover was shot at North Wootton on November 1st, and records of a Blackbird vigorously attacking a Cuckoo and of a melanistic Black-headed Gull may be maintained. Black-headed Gulls bred on the Sewage Farm.

The Hastings and East Sussex Naturalist : Notes on the Local Fauna and Flora for 1946. By N. F. Ticehurst (Recorder).

There are again a number of interesting records from this area. One, or possibly two, Little Buntings in September have already been recorded in *British Birds,* as has a party of Dotterel in the same month. A Lesser Grey Shrike was clearly identified on Pett Level on August 1st and an Alpine Swift there on July 8th. Other noteworthy records are : a male Ortolan at Fairfield on May 10th, up to five Tawny Pipits on Pett Level in early April and others recorded in August and October, a pair of Ferruginous Ducks at Rye Harbour Gravel Pits from November 17th to December 8th, a Kentish Plover satisfactorily identified on Nook Beach sands on September 9th, and an Avocet on the Rother estuary on the late date of November 10th. There are also several records of Marsh-Harriers and others of Firecrest, Hoopoe, Spoonbill and other more or less scarce species. Common Scoters were present all the year in Rye Bay. Several cases of the breeding of Garganey on Pett Level in past years from 1908 to 1932 are placed on record, as is a thirty-year old occurrence of Barnacle Geese, seven of which were seen on Pett Level on February 11th, 1917, constituting only the fifth record for the area. Marsh-Warblers bred in the Rother Valley, and five or six, presumably a brood, were seen on Pett Level on August 10th. These last are recorded by a careful observer, but as the identification of this species when not breeding is not easy some details might have been given.

A remarkable movement of Goldcrests is recorded at Dungeness on October 11th, when hundreds were "running about at the foot of the bushes like mice." An undomed Magpie's nest and two instances of Linnets nesting in purslane on a mud-flat may also be mentioned.

Wild Bird Protection in Norfolk, 1946.

The position of the Norfolk report is somewhat peculiar. It is primarily a report of the Council of the Norfolk Naturalists' Trust on the important protected areas of the Broads and coast, and since the regrettable cessation of Mr. Riviére's annual reports in *British Birds* there has been no general county bird report in the ordinary sense. Recently, however, the present report has tended to include more notes from the county outside the protected areas and we hope this tendency will increase and extend, although the main emphasis must naturally continue to be on the areas directly controlled by the Trust.

About 1,900 pairs of Sandwich Terns bred at Scolt, but only an abortive attempt at nesting was made at Blakeney and none bred at Salthouse. One pair of Roseate Terns bred at Scolt and reared young and at least three pairs of Arctic Terns nested amongst the numerous Commons. Three pairs of Marsh-Harriers bred in the Horsey area. In spite of careful watching a clutch of six was robbed. It is difficult to speak strongly enough of the mentality of persons responsible for this sort of thing. Fortunately the pair bred again and hatched five eggs, but two of the young ones were killed by the bigger chicks. The other two pairs reared four and two young respectively. There is reason to believe that another pair bred on the North coast. Two pairs of Montagu's Harriers bred in the Hickling area and reared eight young. Seven pairs of Bitterns are believed to have bred at Hickling. There were six booming birds in the Somerton-Horsey area and four nests were found, in which from two to five young were reared. At least three pairs nested at Cley and in September eleven were seen there in the air at once. Bearded Tits were absent from Horsey in the summer. At Hickling the species did well: twelve nests, in which young were reared, were actually located, and there were certainly others. We fear the news for 1947 will be much less happy. A pair was present at Cley in November. A pair of Quail also bred at Cley. There are several records of Orioles, and there is reason to think that a pair bred near Horsey. The astonishing case of a Kittiwake nesting on the shore at Scolt has already been recorded in our pages. We note that about a hundred Kittiwakes, consisting of eight adults and the rest in first summer plumage, were present on the beach at Scolt on June 30th, an unusual occurrence.

Black Terns were numerous in the spring; fuller details will be found on p. 378. Fulmars were present about the cliffs at Sheringham and west of Cromer, but still do not appear to have bred, although at the latter site they have been observed since 1939. Of rarer visitors, a juvenile Long-tailed Skua picked up dead at Scolt on October 5th, a Temminck's Stint at Cley on September 10th and two on the 11th, two Kentish Plovers at Breydon on May 12th and one on September 2nd may be mentioned. The identification of the Kentish Plovers is presumably considered satisfactory, but it would have been better if some details had been given. A possible Yellowshank was seen at Salthouse on October 2nd, but the evidence is not conclusive. The important record of an Eastern Rufous Turtle-Dove has already been published in *British Birds*.

Other points which might be mentioned are the increase of the Magpie in Norfolk, where formerly it was quite an uncommon bird over the greater part of the county, an early record of Purple Sandpipers (three) at Blakeney on August 2nd, and an interesting case of a Lapwing seen to pick up and carry away a young one in its feet. A fairly certain case of this is recorded in the *Zoologist*, 1892, p. 350, but we know of no other. A Scandinavian Lesser Black-backed Gull ringed near Gothenburg, Sweden, in 1945 was picked up dead at Breydon on September 5th.

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